QUATRO 44™

QUATRO 68™

User Manual

QTRO42016A-V3
QTRO62016-A
QTRO420150-V3-NOPC
QTRO420150-V3-NPEE
QTRO620150
QTRO620150-NOPC
QTRO620150-NPEE

Bv3 Sep 2025

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1.1 General Information

This document is based on information available at the time of its publication. While every effort has been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware, software, features, or specifications, or to provide for every possible contingency in connection with installation, operation and maintenance. Features may be described herein which are not present in all models of this product.

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First Edition: March 2024

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M&R Printing Equipment, INC.
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USA

1.2 Defined Purpose

Textile Presses

Textile Presses are designed to print textile inks on textile substrates, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Textile Dryers

Textile Dryers are designed to cure and dry textile inks on textile substrates, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Graphic Presses

Graphic Presses are designed to print graphic inks on rigid and semi-rigid flat substrates, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Graphic Dryers

Graphic Dryers are designed to cure and dry graphic inks on rigid and semi-rigid flat substrates, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Exposure Equipment

Exposure Equipment is designed to produce photographic printing plates and printing screens, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Folding and Packaging Equipment

Folding and Packaging Equipment is designed to fold, transport, and package textile materials, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Ancillary Equipment

Ancillary Equipment is designed to perform specific operations related to processing and handling of substrates, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Digital Equipment

Digital Printers are designed to print water based inks on textile substrates and screens, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

Screen Cleaning Equipment

Screen Cleaning Equipment is designed to automate the removal of textile inks and emulsion, as more fully set forth in the manual specific to that product. Any other use of this equipment is not permitted.

1.3 Limited Warranty

Your Warranty does not apply to damages sustained due to equipment misuse, whether intentional or negligent, and such misuse may void your warranty. Misuse includes - but is not limited to - the items listed below. In addition, M&R Printing Equipment accepts no responsibility for personal injury or property damage caused by misuse.

1. Use of the equipment for any non-defined purpose.
2. Improper installation or use of the equipment.
3. Operation of the equipment with defective safety devices.
4. Operation of the equipment with safety devices removed, disabled, not working in whole or in part or in any manner rendered ineffective for the purpose for which they were designed.
5. Failure to comply with instructions for transportation, storage, installation, operation, maintenance, setup, and take-down of the equipment as described in the Operator's Manual.
6. Unauthorized modification of the equipment or equipment software.
7. Failure to replace worn or defective parts.
8. Failure to use M&R supplied replacement and repair parts.
9. Defective repairs made to the equipment.
10. Dangerous conditions which result from improper use of the equipment.

Trademark Information

The following are trademarks or registered trademarks of their respective owners:

- M&R and Quatro are trademarks, registered trademarks, or product names of M&R Printing Equipment, INC.
- Note that other trademarks may be mentioned in this product manual that are not listed above. All trademarks are acknowledged.

1.4 Management Responsibilities

1. Ensure that this equipment is used only for the purposes set forth in the "Defined Purpose" section of this manual.
2. Ensure that all employees involved with the operation of this equipment or working near it read, understand, and act in accordance with the operational and safety standards set forth in this manual, including the Operator Responsibilities listed below.
3. Ensure that all recommended preventive maintenance is carried out according to M&R guidelines.
4. Should any problem arise which compromises the safe operation or normal functioning of this equipment, ensure that the equipment is immediately shut down, sources of power to the equipment are shut off and secured, and that personnel not trained to repair - and directly involved in repairing - the equipment are removed from the immediate area and not allowed to return until the equipment has been returned to a safe and fully-functional condition.
5. Provide, and compel use of, any personal protection devices that may be required for the safe operation of this equipment.
6. Make no modification to equipment or equipment software without written approval from M&R.
7. Provide - and support with written documentation - necessary employee training to ensure safe operation, including but not limited to instruction in:
    a. The operation of this machine.
    b. The use of personal protection devices.
    c. Preventive maintenance procedures

1.5 Operator Responsibilities

⚠ WARNING

'Operator Responsibilities' pertain to all employees who work on or near the equipment; this includes, but is not limited to those who clean, maintain and repair the equipment as well as those who operate it. In general, all those who work on or near the equipment have a duty to use reasonable and ordinary care for their own safety when in the vicinity of the machine. Failure to use reasonable and ordinary care subjects people and property to serious personal injury and/or death and to destruction of personal and/or company property. M&R expressly disclaims any and all liability, whether in contract, tort or by statute, for damages, whether in the nature of personal injury/death and/or property damage, and whether direct, indirect, consequential or incidental, as a result of a failure to use reasonable and ordinary care.

1. Ensure that this equipment is used only for the purposes set forth in the "Defined Purpose" section of this manual.
2. Read, understand, and act in accordance with the safety and operational standards and guidelines set forth in this manual.
3. Install and maintain the equipment and safety devices in accordance with this manual; this includes checking the equipment and safety devices for external or visible damage at least once per shift, and making sure all safety and danger notices are in place and in readable condition.
4. Make no modification to equipment or equipment software without written approval from M&R.
5. Ensure that all other employees working on or near this equipment are knowledgeable in its safe operation, and closely supervise inexperienced employees; keep bystanders away from the equipment.
6. Make sure the area around the equipment is clear and free of obstructions, clean up spills immediately, and remove ink and other contaminants at the end of each shift.
7. Ensure that any and all safety guards (including but not limited to safety bar, foot switch, yellow cycle interruption cords, infrared safety beam or hand

switches) provided with this equipment for the purpose of protecting personnel by automatically stopping the equipment are in place - and are not removed, disabled or rendered ineffective during operation.

8. Wear any personal protection devices required for the safe operation of this equipment.
9. Avoid wearing anything that could become entangled in moving parts; For example, but not by way of limitation, tie back, pin up, or cover long hair, remove any jewelry that may get caught.
10. Do not attempt to operate this equipment if you are sick, fatigued, or under the influence of alcohol and/or drugs including, but not limited to, prescriptions and over-the-counter medications that warn against the operation of equipment.
11. Avoid standing on any part of the equipment not intended for that purpose.
12. Immediately shut down the equipment, disconnect and lock out all sources of power (electrical, gas, and/or pneumatic); and purge all lines under pressure if the equipment fails to be fully operational or if any safety device fails to operate properly, and ensure that the equipment stays off-line until the safety device is again operational.
13. Perform - and document - preventive maintenance at intervals described in the Operator's Manual.
14. Keep this Operator's Manual in clean, easily readable condition near the equipment at all times so it can be quickly accessed by operators and maintenance personnel.

2. Safety and Environment

This section explains the labels, procedures, and operational guidelines that operators and other personnel working on or in the area immediately surrounding the Quatro.

Before using the Quatro, read and understand the safety procedures including environmental protection procedures.

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2.1 Safety and Operational Guidelines

The product described in this publication may operate at high speed and contain numerous moving parts. It may employ natural gas or propane, mechanical or pneumatic forces, and/or hazardous voltages, and may create other conditions that could, through misuse, abuse, unauthorized alteration or retrofitting, inattention, or lack of understanding, result in serious injury, death, and/or damage to the product or to other equipment. In addition, improper operation may also deprecate the value of the machine and other assets of the owner, and impair the working efficiency of the machine.

⚠ WARNING

Read all guidelines before use. Failure to follow safety and maintenance procedures or to take appropriate corrected action when required can result in severe or fatal personal injuries, property damage, and/or damage to the equipment.

- Do not operate the equipment if any safety device is not functioning properly, or if any doubt exists about proper operation of safety devices.
- Do not climb on equipment or place heavy things on top of it.
- Do not block any fans or vents.
- Do not use a damaged power cord set.
- Do not insert or drop metal or flammable objects into the equipment through openings such as a vent, gate, or cover.
- Do not wear ties, scarfs, loose clothing or jewelry when operating or maintaining the equipment.

▲ Only qualified personnel should access or service critical energy sources used to power and operate the equipment including but not limited to:

- Pneumatic assemblies or components
- Electrical enclosures and systems
- Gas components or assemblies

2.2 Types and Meanings of Warnings

This Manual uses four (4) signal words in its warnings to denote increasing levels of severity.

Warning:	Meaning:
⚠ DANGER	**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	**NOTICE** is used to address situations, if not avoided, could result in property or equipment damage.

In addition to the four (4) signal words, embedded safety messages may appear within the text to alert you to congenital physical injury hazards.

▲ Obey all safety messages that follow this symbol to avoid possible injury.

2.3 Warning Labels

This section explains the handling of warning labels, what labels are on the equipment, and what they look like. Warning labels are placed in various locations on the Quatro. Understand the descriptions of the warnings associated with each label before operating the equipment. Note that some of the warning labels are behind covers or doors that may be accessible only to authorized service personnel.

Handling the Warning Labels:

NOTICE

- Check whether all the warning labels can be read. If the letters or illustrations on the label are not clear, remove dirt from the label.
- Use cloth, water, and mild detergent for removing dirt from the warning labels. Avoid organic solvents and gasoline.
- Replace the labels if they are damaged, lost or illegible. If the warning labels must be replaced, contact M&R Printing Equipment, INC.

Warning Labels Appearing on the Quatro

1		**WARNING!** Ground location and high voltage hazard. Electric shock, explosion, and fire could occur if the equipment is not grounded.
2		**WARNING!** High voltage electricity hazard. Take care to avoid coming into contact with electricity.

3		**WARNING!** Hot Surface Hazard Surface may be hot and can burn or cause injury. Take care when working around hot surfaces.
5		**CAUTION!** Mechanical pinch point hazard Pinch points between rollers, wheels, and other parts can trap hands, fingers, clothing and cause injury. Take care when in the vicinity.
7		**CAUTION!** Fire Risk Hazard Do not place flammable materials near intake vents or exhaust fan openings.
6		***NOTICE*** Main Power Switch Location* The Main Power Switch is located behind the panel where this label is placed on the equipment.
7		***NOTICE*** Main Power Switch* Identifies the Main Power switch.

Table 2 - 1 Warning Labels appearing on the equipment

* North American Models Only

* North American Models Only

2.4 Safety Systems

Safety Data Sheets (SDS)

Safety Data Sheets (SDS) are supplied for consumables. Keep the SDS readily available in the work area. Read and consult them for your personal protection.

Electrical Safety

The Quatro must be properly grounded at all times. Before operating the equipment, ensure that it is grounded in conformance with the electrical code standards for your country or region. If in doubt, check with a license electrician.

⚠ DANGER

Do Not operate the Quatro if it is not properly grounded.

If a cable has to be disconnected or reconnected during a maintenance procedures you must electrically turn off and lockout the equipment.

2.5 Emergency Power Shutdown

The following can turn off power to the Quatro:

2.5.1 Emergency Stop Button Location

In an emergency, press one of the red Emergency Stop buttons to stop all mechanical movement in the printing area and power off the dryer.

Red Emergency Stop buttons are located on the printer near the PC and Dryer Control Panel.

- **To engage the Emergency Stop**: press an Emergency Stop button down
- **To restore power**:
    1. Rotate the Emergency Stop button clockwise to release.
    2. Press the reset button on the control panel to clear alarms from the control panel.

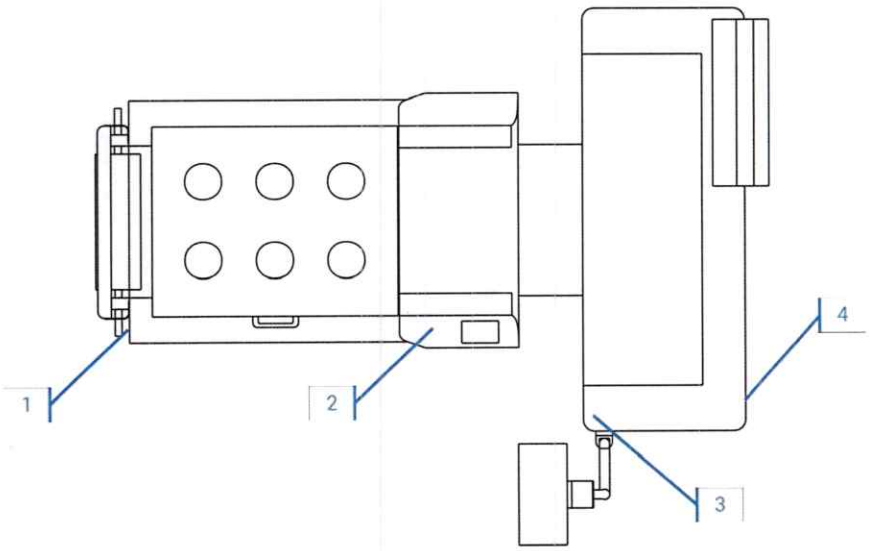

Figure 2 - 1 Emergency Stop button locations

2.5.2 Main Power Switch Location

The main power supply switch is an isolating device, which can be locked in the Off position to avoid an unexpected start or release of electrical power during servicing.

For North American Models:

The Main Power switch is located inside the left dryer cabinet opposite the electrical cabinet.

For European CE certified Models:

The Main Power switch is located on the back left side of the printer.

Turn off the Quatro then rotate the switch counter-clockwise (left) to turn off all electrical power to the Quatro, including the ink circulation system and PC.

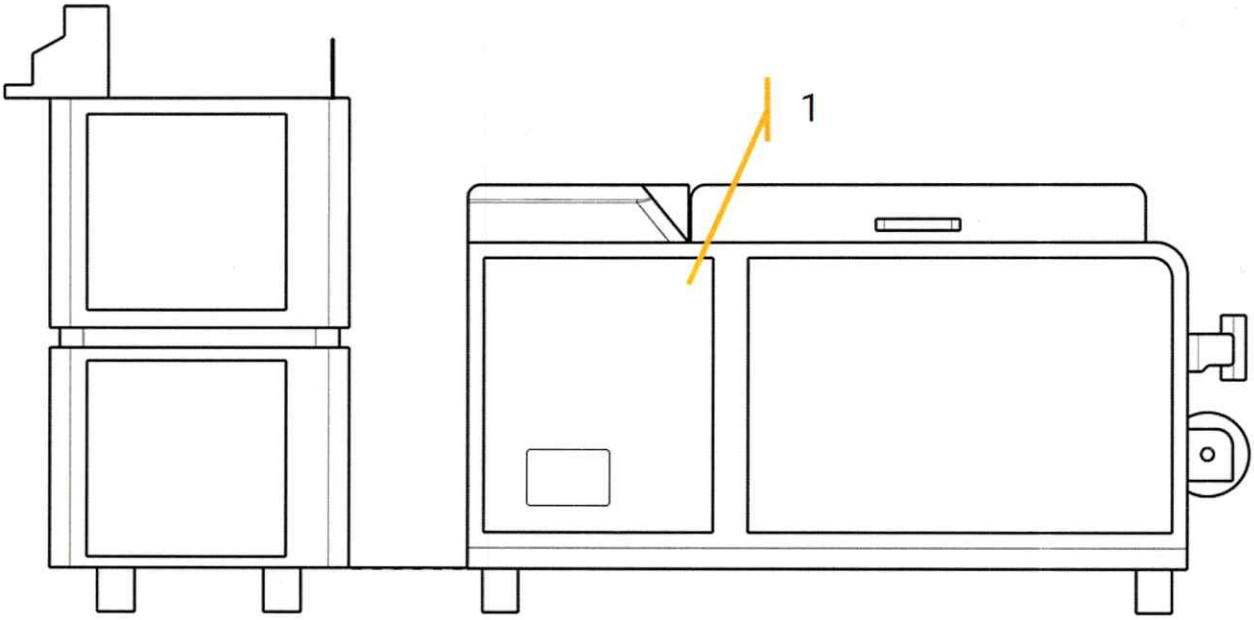

Figure 2 - 2 North American Models Main Power Switch (1) is located inside the dryer cabinet on the left side.

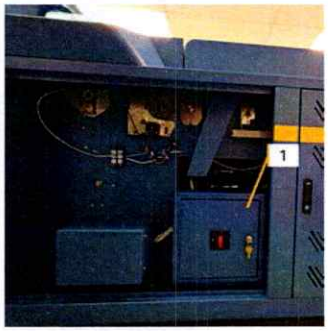

Figure 2 - 3 *Detailed view of the Main Power Switch (1) - North American Model*

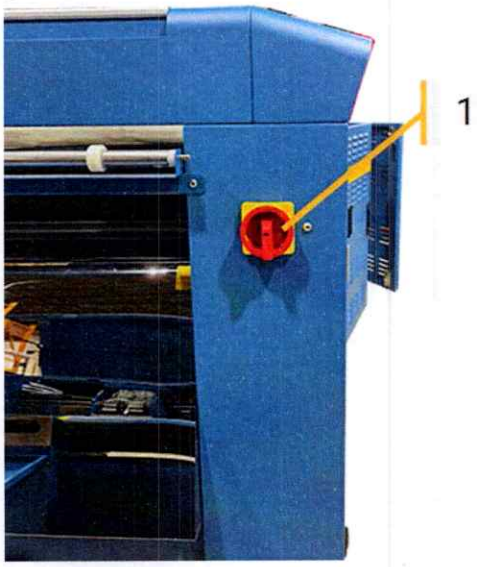

Figure 2 - 4 *CE Certified models Main Power switch (1) is located on the back left side of the printer.*

2.6 Maintenance Safety

For European CE certified models

Limit switches are installed on all cabinet doors that provide access to the electrical cabinet of the printer and dryer.

When you open an electrical cabinet door, the system turns off power to that component.

To turn on the printer and dryer, make sure all cabinet doors are closed.

2.6.1 Lockout Procedure

Lockout means either locking or securing a device like a fuse box to prevent the equipment from being activated or unplugging the equipment. Use the lock procedure outlined below when there is any risk of unexpected activation.

1. Turn the Quatro off.
   See **Turn Off the Quatro** on page 30 for more information.
2. Turn the Main Power switch to Off, then install a locking device.
   See **Main Power Switch Location** on page 16 section for location and more information.
3. Allow 20 seconds for residual stored energy to dissipate after the equipment is removed from power before servicing.

2.7 Status Lights

There are two status lights on the Quatro, each light showing the current conditions of a specific component:

1. Printer Status Light: Status of the printer, ink tanks, and film roll in-feed.
    - Located on the left front cover of the printer.
2. Dryer Status Light: Status of the dryer and powder shaker.
    - Mounted on the left cover of the dryer near the powder shaker.

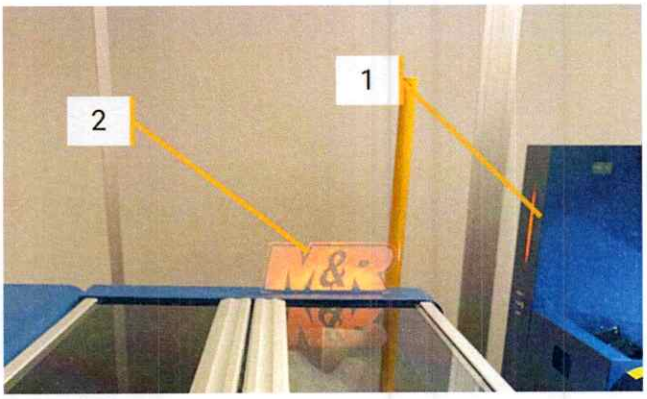

Figure 2 - 5 Status Light location

The light consists of three colors that indicate unit status when the Quatro is powered on.

Table 2 - 2 Light detail

Color	Function
Green	In operation
Yellow	Idle State or Standby
Red	Alarm is present

2.8 Door Interlocks

The Quatro has several interlocked doors that stop access to the equipment when in operation. If any of the doors are open, the Quatro will pause operation and wait until the doors are engaged to continue.

> **⚠ WARNING**
>
> Do not bypass the door interlocks, reach into the print area or override any safety devices while the Quatro is in motion.

The following doors are interlocked

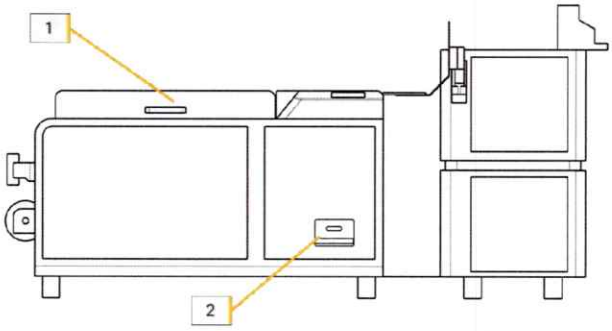

Figure 2 - 6 *Dryer belt door (1) and Powder Tray (2)*

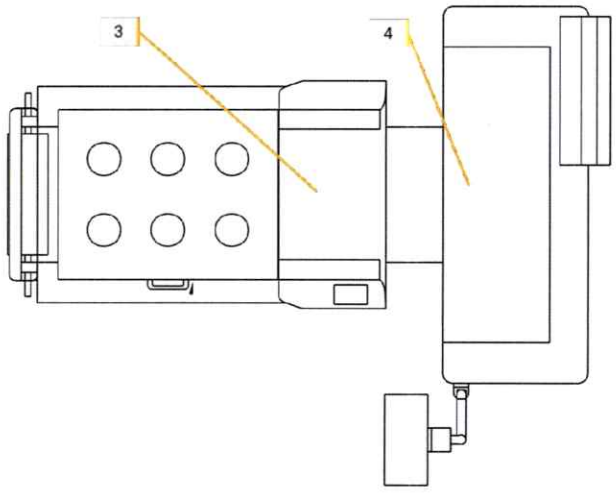

Figure 2 - 7 *Powder shaker door (3) and Print Area door (4)*

3. Product Overview

This section explains the features, names, and function of each component, and machine specifications.

3.1 Specifications **22**

3.1.1 Quatro General Specifications 22

3.1.2 Quatro Technical Specifications 23

3.2 Features **24**

3.3 Names of Parts **25**

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3.3.3 Left Side View 27

3.1 Specifications

3.1.1 Quatro General Specifications

	Quatro 44	Quatro 68
Epson I3200 A1 Printheads	4 Printheads Total 2 Color and 2 White	6 Printheads Total 4 Color and 2 White
Colors	Cyan, Magenta, Yellow, Black, and White	Cyan, Magenta, Yellow, Black, Orange, Red, Green, Violet, and White
Powder	TPU Adhesive Powder	
Print Resolution and Speed	720 X 1800 dpi, 6-Pass, 90 linear feet per hour 720 X 2400 dpi, 8-Pass, 60 linear feet per hour	
Ink System	White Ink auto circulation supply system	
Ink Type	M&R Quatro Ink (water-based)	
Printing Media	M&R Quatro DTF 24 in. PET Transfer Film	
Media Handing	Automatic roll out and film take up	
Operator Interfaces	Windows Server - Included Color Touch Screen Control Panels	
Included RIP Software	M&R Quatro RIP - powered by Caldera	

Table 3 - 1 Quatro Specifications

3.1.2 Quatro Technical Specifications

Requirements	Quatro 44	Quatro 68
Electrical Requirements [1]	230 VAC, single-phase, 60 Hz, 34 A, 8 kW (North America) 230 VAC, single-phase, 50 Hz, 34 A, 8 kW (Europe)	
Product Width	93.5 in. (237 cm)	98.6 in. (251 cm)
Product Depth		113.5 in. (289 cm)
Depth with inline Cutter X		156 in. (396 cm)
Product Height		Max 57.3 in. (146 cm)
Printer Weight	642 lb. (292 kg)	670 lb. (304 kg)
Dryer Weight		720 lb. (327 kg)
Operating Environment		Temperature: 68 F to 80 F Relative Humidity 40 - 70 % non-condensing

Table 3 - 2 Quatro Technical Specifications

[1] If incoming voltage differs from the voltage(s) listed, calculate amperage accordingly. Other electrical configurations are available: Contact M&R Printing Equipment for details. Confirm the latest specifications on our website: www.mrprint.com.

3.2 Features

The Quatro Printer is a modern and efficient method of applying vibrant, high-quality durable images onto a wide variety of materials including fabrics like cotton, polyester, blends and leather as well as hard surfaces like wood, metal and plastic.

Quatro Printer

- Industrial components and fast production.
- PC workstation with intuitive Graphic User Interface (GUI) and Quatro RIP Software - Powered by Caldera.
- High resolution output.
- Bulk ink system with white ink recirculation.
    - **Quatro 44** features a standard gamut of CMYK plus White Ink.
    - **Quatro 68** features an expanded gamut of CMYK + Orange, Red, Green, and Violet (ORGV) plus White Ink.

Combination Adhesive Application System and Quartz Infrared Dryer

- On-board bulk powder adhesive reservoir to promote continuous system operation.
- Trays to capture excess powder adhesive for reuse.
- Integrated exhaust filtration system.
- Continuous temperature monitoring.
- M&R's "Positive Link System" to ensure accurate film tracking between printer, powder shaker, and dryer.

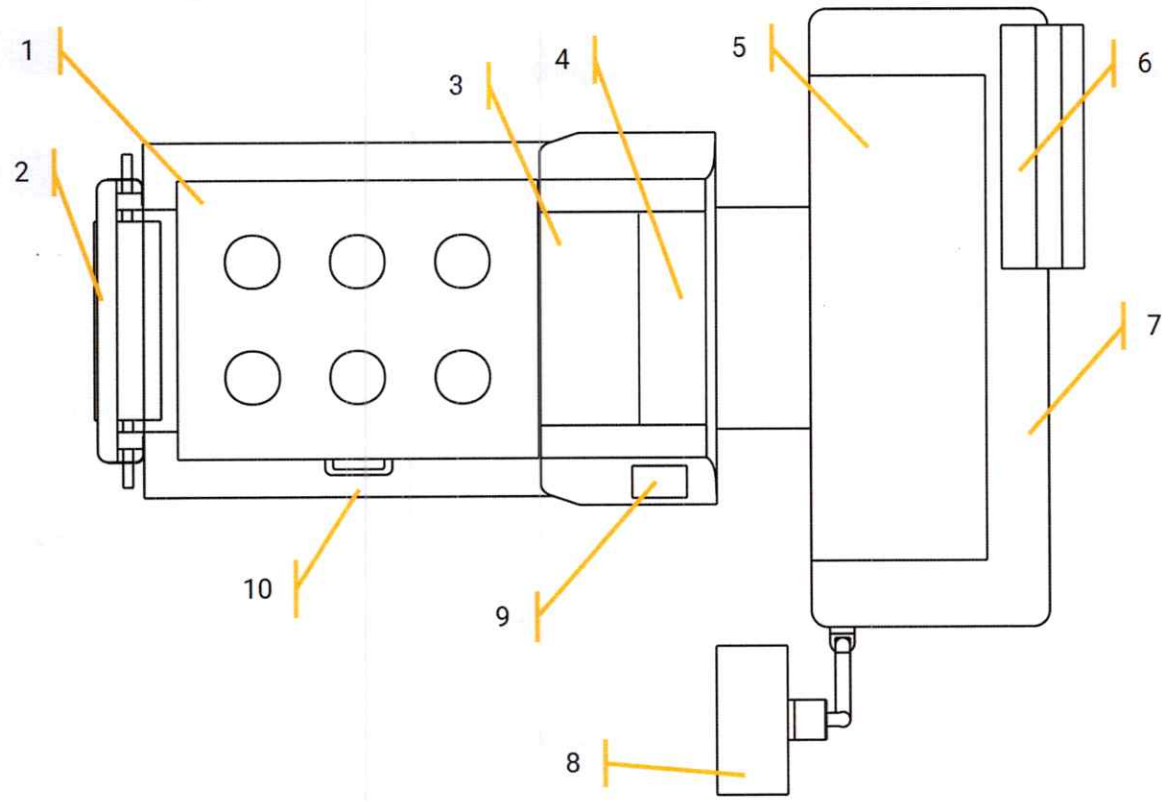
Quality Consumables

- Quatro Inks are manufactured in the United States to ISO 9001 quality standards in joint development with our technology partner.
- Quatro PET Transfer Film and Powder Adhesives are continuously tested to provide a cohesive ecosystem with our Quatro Inks to ensure quality.

3.3 Names of Parts

This section explains the names of key operational parts of the Quatro.

3.3.1 Top View



1. Dryer
2. Dryer Take up Roll
3. Shaker Box
4. Powder Dosing Box
5. Printer
6. Ink Tanks
7. Film Roll In-Feed
8. PC with PrintEXP and RIP
9. Dryer Control Panel
10. Dryer Belt Access Door

3.3.2 Right Side View

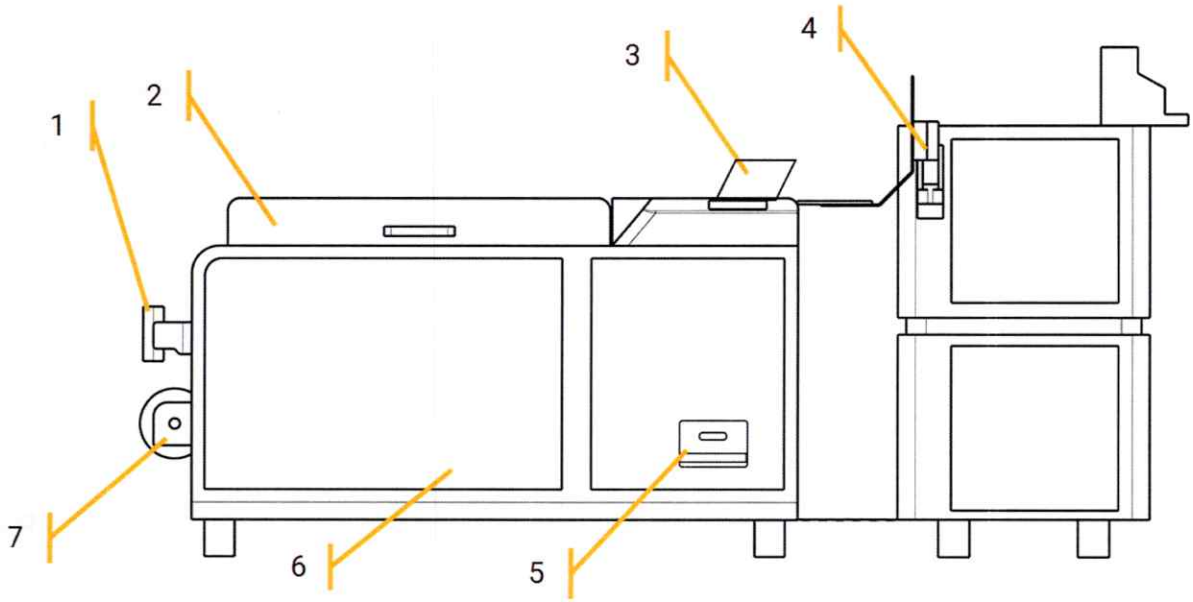


Table 3 - 3 Right Side View

No.	Name
1	Dryer Take up Fans
2	Dryer Belt Access Door
3	Status Light
4	PC with RIP
5	Powder Tray
6	Printer Electrical Cabinet
7	Dryer Take up Roll

3.3.3 Left Side View

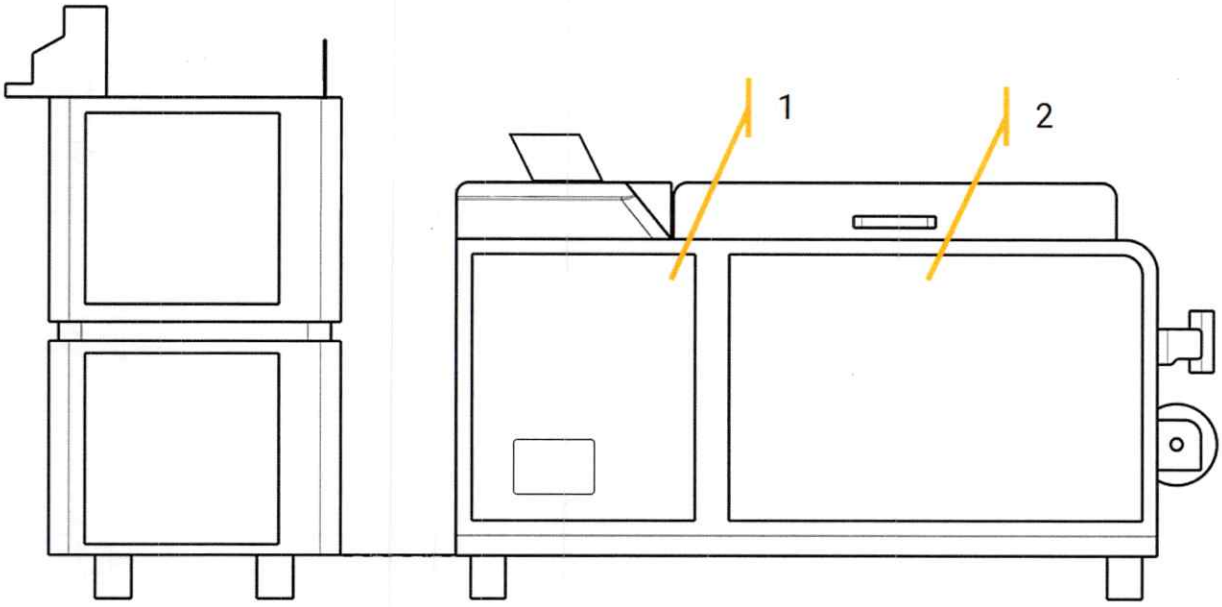


Table 3 - 4 Left Side View

No.	Name
1	Main Power Switch Access Door
2	Dryer Filter Access Door

4. Operating the Quatro

This section guides you through the typical tasks for operating the Quatro and includes the following:

4.1 Turning the Quatro On and Off 29
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4.3 Printing a job 35
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4.1 Turning the Quatro On and Off

NOTICE

Do not fully power off the Quatro from the Main Power switch unless instructed by M&R or as part of a maintenance procedure. Power must be maintained to circulate the ink in the Main Tanks to prevent damage to the ink system.

4.1.1 Turn On the Quatro Printer

1. Power On the Printer:
    - Release the red Emergency Stop button on the top of the printer.
2. Power ON the Dryer:
    - Press the green Power On button on the dryer control panel.
    - Ensure the green button is illuminated and the dryer HMI is On.
3. Turn on the heat for the dryer.
    - Go to the Main Screen on the Dryer HMI and select Heat.

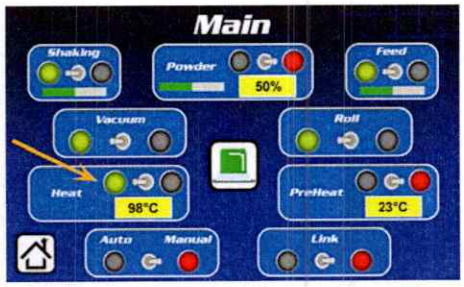
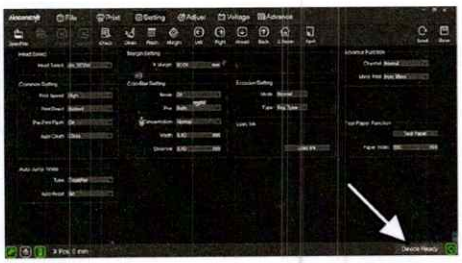


Figure 4 - 1 The yellow text below the toggle displays the current dryer temperature in Celsius.

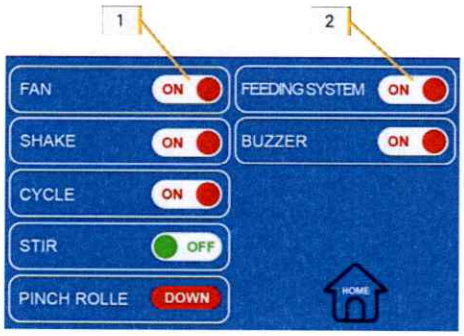
4. Confirm the message "Device Ready" appears in the lower right corner of the PrintEXP window.



4.1.2 Turn Off the Quatro

1. Change the dryer operation mode from Auto to Manual.
    - The dryer will begin to cool down.

2. Turn off the printer fan (1) and Feeding System (2) from the Printer HMI Control Menu.



3. Close the PrintEXP software on the PC to cap the printheads.
    - Verify the printheads are capped before moving to the next step.

4. Press the red Emergency Stop button on the top of the printer to turn it off..
5. Press the green Power button on the dryer control panel to turn it off.

4.2 Using the Quatro

The following instructions are for standard daily operation and use of the Quatro.

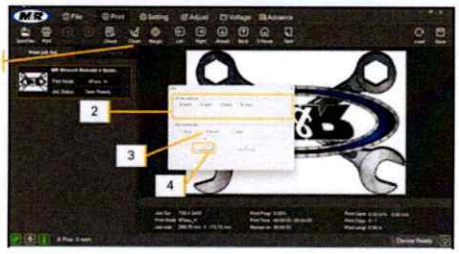
Start the Quatro

1. Turn on the printer and dryer.
   - See **Turn On the Quatro Printer** on page 29 for more information.
2. Prepare the Quatro for operation
   - Check supplies, verifying there is enough film, ink, and powder for production.
   - Inspect the Waste Tank, empty if necessary.
   - Confirm the Feeding System and Fans are powered On and the Pinch Rollers are Down from the Printer HMI.
3. Select the Powder button on the Dryer HMI. Repeat this step until the shaker is at its desired weight.
4. Confirm the dryer is set to Auto Mode from the Dryer HMI.

Figure 4 - 2 Press toggle to change dryer operation status.

Perform a Strong Clean on all heads in the PrintEXP software.

1. Select Clean from the top tool bar.
2. Select all heads in the pop-up window.
3. Select the cleaning mode: Strong
4. Confirm your selection with the button on the left.



5. Print a Nozzle Check and inspect.
   - See **Printing a Nozzle Check** on page 47 for more information.

Send jobs to the Quatro

1. Load a PRN or PRT file to the job list.
2. Adjust the quantity and layout settings.
3. Send the job(s) to the printer.
   - See **Printing a job** on page 35 for more information.

Shut down the Quatro

When you are finished printing for the day or at the end of a shift, perform the following:

1. Clean the printheads and capping assembly.
   - See **Cleaning the Capping Assembly, Wiper Blades, and Printhead Plate** on page 71 for more information.
2. Clean the edge guides.
3. Inspect the Waste Tank, empty if necessary.
4. Return the Printhead Carriage to the capping station
   - Select the X Reset (Home) button from the Top Tool Bar.
     - See **Top Toolbar** on page 66 for more information.
5. Turn off the printer and dryer.
   - See **Turn Off the Quatro** on page 30 for more information.

4.2.1 Pausing Operation and Managing Breaks

NOTICE

Extended exposure to air will cause ink poor nozzle-check performance, print quality issues, and damage printheads. Always keep printheads capped when the Quatro is not printing.

Short Pauses (Under 10 minutes):

1. Return the Printhead Carriage to the capping station.
    1. Select the X Reset (Home) button from the Top Tool Bar.
    2. Confirm the printheads are capped to prevent the ink drying on the printhead surface.

Planned Stops and Longer Breaks (More than 10 Minutes)

If you plan to leave the Quatro for more than 10 minutes like lunch breaks or shift changes, do the following:

1. Clean the printheads

    See **Cleaning the Capping Assembly, Wiper Blades, and Printhead Plate** on page 71 for more information.
2. Confirm the printheads are capped.

When you return from an extended break, do the following before restarting production:

1. Perform a Strong Cleaning on all printheads in PrintEXP.

    See **Perform a Strong Clean on all heads in the PrintEXP software.** on page 31 for more information.
2. Print a nozzle-check and inspect.

    See **Printing a Nozzle Check** on page 47 for more information.
3. Repeat these steps if necessary until nozzle check is satisfactory.

4.3 Printing a job

Art files must be prepared for print and in the correct format before adding to the job list. Learn more about using the Quatro RIP by Caldera, in your Caldera Workspace account by logging in at workspace.caldera.com.

For an overview of all the PrintEXP software screens, see the **PrintEXP Software** on page 64 section.

To print jobs:

1. Load a PRN or PRT file from to the job list.
2. Adjust the quantity and layout settings.
3. Send the job to the printer.

4.3.1 Loading jobs

From the PrintEXP software, load jobs to the Print a Job list. There are 2 ways to load jobs to the list.

1. File Workspace Menu
    - Select the File button
    - Navigate to the folder with the prepared files you will be printing. This may be the Caldera Output folder or another local drive.
    - Double click on the file you would like to print from the navigation window to add this file to the queue.
    - Continue until all jobs you would like to print have been added to the queue.
2. OpenFIles Toolbar button
    - Select the OpenFIles button from the top toolbar.
    - Navigate to the folder with the prepared files you will be printing.
    - Select the file(s) you would like to print from the pop-up navigation window.
    - Select the right-most button to confirm your selection.
    - Repeat the above steps to add jobs from different folders or local drives until all jobs you would like to print have been added to the queue.

4.3.2 Adjusting Job Settings

Change job quantities and placement from the Print Menu.

1. Right-click on the job and select Task Setting.
    - Increasing the X Count copies changes the number of job across the width of the film.
        - If more than 1 copy is too wide for the film, the job will have a job failure alert. Keep the total width, including X Space to less than 22 inches wide.
    - Increasing the Y Count copies changes the number of rows the job will print down the length of the film.
    - Adjusting the X Space increases or decreases the distance between jobs across the width of the film.
    - TIP: Keep 10 to 15 mm between jobs for easy cutting.
    - Adjusting the Y Space increases or decreases the length of space between rows of jobs
        - TIP: Keep 10 to 15 mm between jobs for easy cutting.

4.3.3 Sending Jobs to Printer

When the job is ready to print, highlight the file you would like to send from the Print job list and select Print from the top toolbar or right-click the file and select print.

Jobs are sent to the printer one at a time. To have another job start immediately after the current job, right click the job and select Print Ready to queue it behind the current print job.

4.4 Applying Transfers

For best results when transferring art to a garment or other material, use the following settings on your heat press:

- Temperature: 275°F
- Pressure: 60 - 80 PSI
- Time: 8 to 10 seconds

> ***NOTICE***
>
> Always test settings to assure proper application with your heat press and substrate type. Settings can vary based on a variety of factors.

Applying the Transfer to a Cotton Tee Shirt

1. Place the garment on the heat press platen, ensuring there are no wrinkles or folds in the pressing area including the back of the garment.
2. Place the transfer art side up/ adhesive side down on the garment.
   - TIP: Use heat resistant tape to hold the transfer in place before pressing.
3. Press the garment for the recommended time.
4. Carefully peel the transfer film from the garment.
   - If you are having any issues with the transfer process, see the *M&R Quatro Film Troubleshooting Guide*.

4.5 Installing and Removing Film Rolls

M&R Quatro Transfer Film comes on a 24 inch wide roll with 328 feet of available print length. Our film is carefully matched to our inks and powder for the best looking garments possible.

Keep unused film in its original packaging until ready for use. Store open and unused film in a plastic bag when the Quatro is not in use for several days like over a holiday break and at the recommended temperature and humidity.

Table 4 - 1 Required Tools

Description	QTY	M&R Part Number
Film	1	QTRO-FILMA
Tape	-	-

Load the New Film Roll

1. Turn the film feeding system off first then raise the pinch roller.
    - For models Quatro 44 and Quatro 68, the Feed System and Pinch Rollers can be controlled from the printer control panel on the front of the printer or using the electronic buttons on back of the printer.
    - For all other models, the Feed System and Pinch Rollers must be controlled using the electronic buttons on the top of the printer.

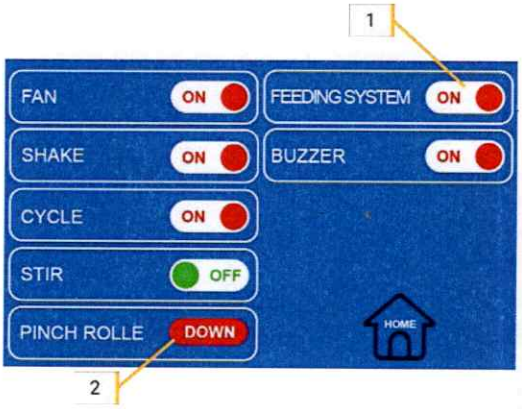


Figure 4 - 3 *Feed System (1) and Pinch Roller (1) buttons on the printer control panel.*

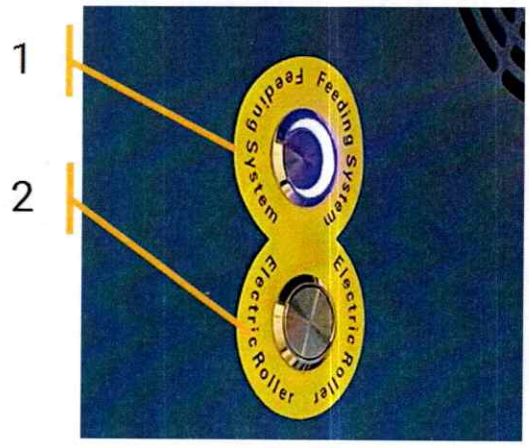
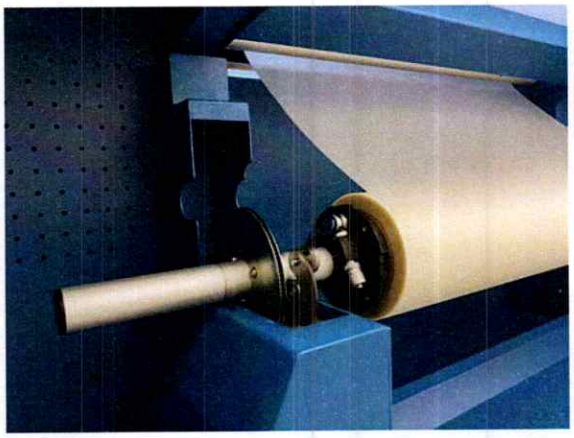


Figure 4 - 4 *Electronic Feed System (1) and Pinch Roller (2)buttons on the top or back of the printer.*

2. Replace the film core with new roll of film onto the roller bar and lock both ends

of the roll in place.

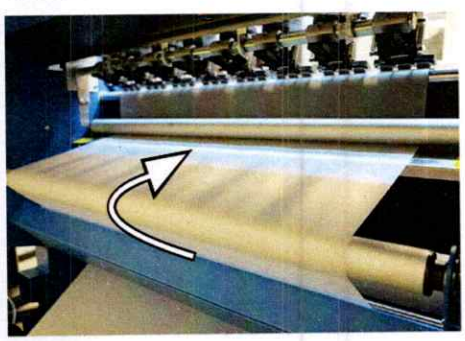


3. Unwind about 6 feet of film to feed through the dancer bars.

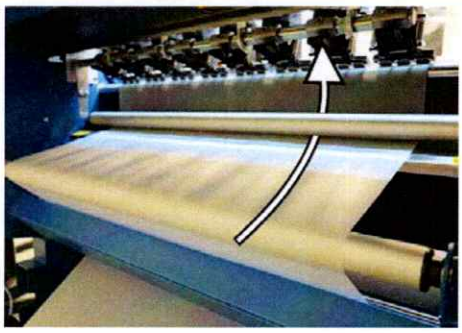
Guide Film Through the Dancer Bars

4. Pull the film around the bottom dancer bar.

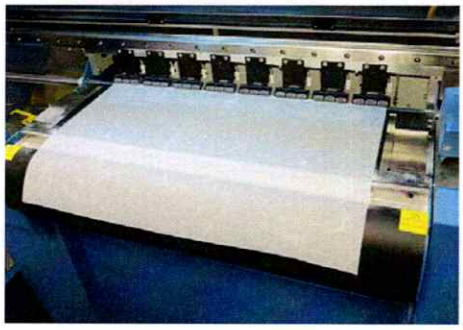
5. Pull the film around and over the upper dancer bar.



6. Slide the film under the top roller and into the print area.



7. Pull film through the pinch rollers to the print area until tension is felt. Center the film under the pinch rollers.



8. Lower the pinch rollers and turn on the electric feed. Printer will find its position.

Feed Film Through the Dryer

9. Press and hold the Ahead button in Print EXP to feed enough film through to dryer out-feed. Approximately 8-10 feet.
10. Feed the film through the shaker box and through the dryer by hand.
    - TIP: Moving the film from side to side in the dryer will keep it flat on the belt.

Figure 4 - 5 *Film being fed through the powder box into the dryer.*

Attach Film to Dryer Out-feed Roller

11. Pull the film under the dryer dancer bar and center the film on the roller.
12. Attach the film to the dryer out-feed roller with tape to finish loading the film.

Figure 4 - 6 *Film fed under the dancer bar and attached to a roll at the end of the dryer.*

[OPTIONAL] If Using the Cutter X Inline

Do not feed the film under the dryer dancer bar. Place an empty dryer out-feed roller in the holder and feed the film under to maintain tension. Feed an additional 4 to 6 feet of film to load the Cutter X. For more information about how to load the Cutter X, see the Cutter X User Manual.

4.6 Refill Ink Tanks

Refill the ink tanks when the Printer HMI indicates a low ink level or as needed.

See Consumables and Parts on page 113 for the full list of available inks in the M&R Parts Store.

⚠ CAUTION

Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

NOTICE

Fill ink tanks to the line. Do not overfill.

Do not over-tighten the ink tank lid.

How to refill the ink tanks

1. Before refilling the ink tanks, shake the ink bottles to mix the ink that may have settled in the bottle.
2. Remove the lids for the ink tank and replacement ink bottle.

Figure 4 - 7 Remove the ink tank lid then open the ink bottle and remove the seal.

3. Carefully pour the contents from the bottle into the tank to the line. Do not overfill the tank.

Figure 4 - 8 *Pour the ink from the bottle into the ink tank*

4. Replace the lid to the tank. Do not over tighten.

4.7 Disposing Waste Ink

Empty the waste ink tank when alerted by the printer, the tank is over half-way full, or as needed. Dispose of the waste ink according to local disposal requirements.

The waste tank is located on the back of the Quatro 44 and Quatro 68 models. For all other models, the tank is on the lower right side.

Figure 4 - 9 *Location of the waste tank bottle for Quatro 44 and Quatro 68.*

Figure 4 - 10 *Location of the waste tank on earlier Quatro Printer models.*

> **⚠ CAUTION**
>
> Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

How to empty the waste tank

1. Place an empty container beneath the waste ink tank.
2. Open the waste fluid valve on the spigot to empty the waste.
   - TIP: Lift the valve handle up to hold in place and keep the valve open while draining.
3. Close the valve when the waste ink has been drained, clean any drips, and dispose the waste ink according to local waste disposal requirements.

4.8 Adding and Managing TPU Powder Adhesive

TPU powder is applied to the film in the powder shaker before curing in the dryer. Maintain the powder shaker weight for an even application, improved durability, and clean peel during transfer.

Refill the powder shaker as needed or when alerted by the dryer.

See **Consumables and Parts** on page 113 for the full list of available parts and consumables in the M&R Parts Store.

> **⚠ CAUTION**
>
> Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

How to add TPU Powder to the Powder Shaker

1. Open the powder shaker door to stop the film moving through the dryer.
2. Remove the refill tray from the side of the dryer and slowly add TPU Powder into the shaker until full. If the refill tray does not have enough powder to fill the shaker, add powder from a bulk container.

Figure 4 - 11 *Remove the powder tray from the side of the dryer.*

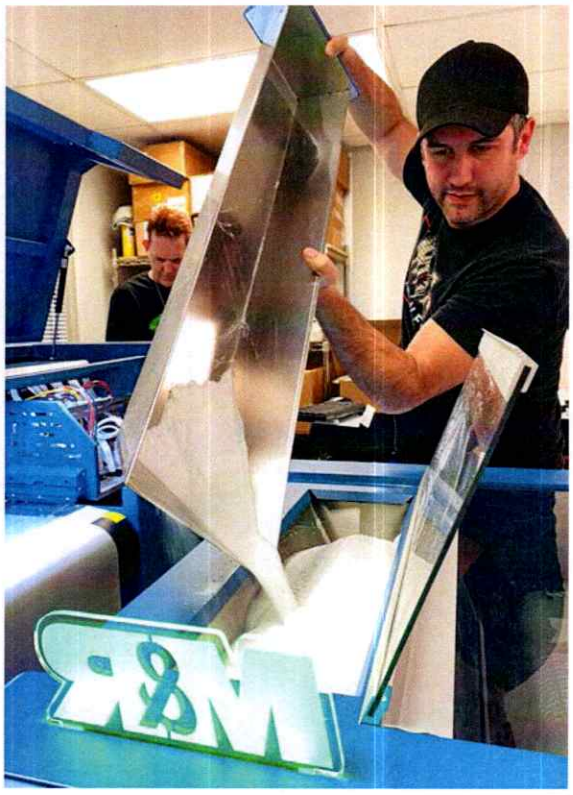


Figure 4 - 12 *Always pour slowly to minimize dust and prevent spills.*

3. Return the Powder Tray and close the Powder Shaker door.

- Inspect the powder when adding to the shaker for any debris like lint, hair, or large clumps. Replace the TPU Powder if there is contamination or if there are quality issues that may be due to the powder.

  If you are having any issues with the transfer process, see the *M&R Quatro Film Troubleshooting Guide*.

4.9 Printing a Nozzle Check

Nozzle checks are a diagnostic process to ensure the print heads are functioning well. Inspect the nozzle check after printing for any large areas of missing lines, gaps or irregularities.

Print a nozzle check as part of daily start up, after cleaning, and if there are quality concerns during operation.

How to print a nozzle check

1. Confirm the X-Margin is greater than 20 mm in the PrintEXP software.

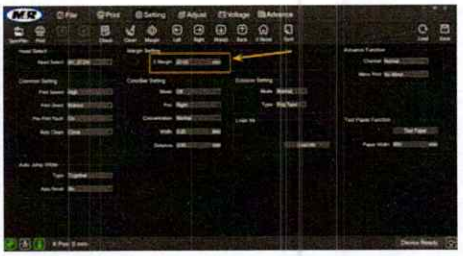
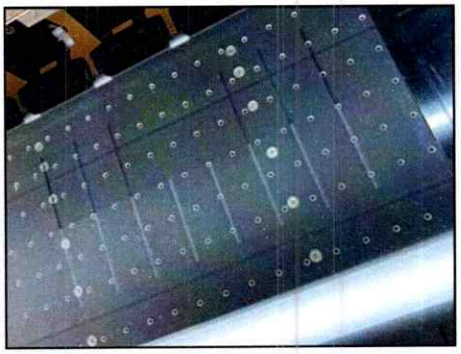


Figure 4 - 13 X-Margin is set to 20 mm in the example

2. Select Check from the top toolbar.

Figure 4 - 14 The printer may take a few seconds to initialize before printing the nozzle check.

3. Inspect the nozzle check.



4. If the nozzle check has many missing nozzles, perform a cleaning process with "STRONG Clean" and repeat this process as needed until the nozzle check is satisfactory.

5. Operator Interfaces

This section explains the menus, control panels, and software on the Quatro.

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5.1 Printer Control Panel

Manage printer settings, feed system, and print area platen temperature from the printer HMI. Navigate between the menus by pressing the HOME button on the bottom on the screen.

5.1.1 Home

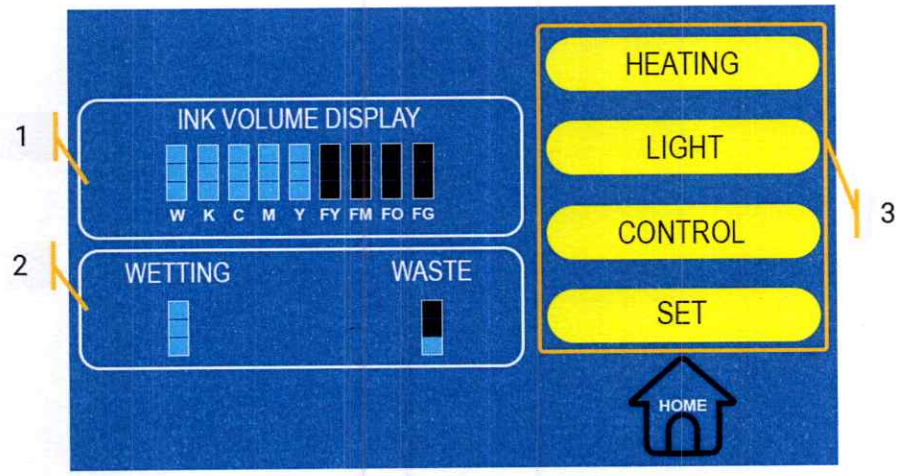
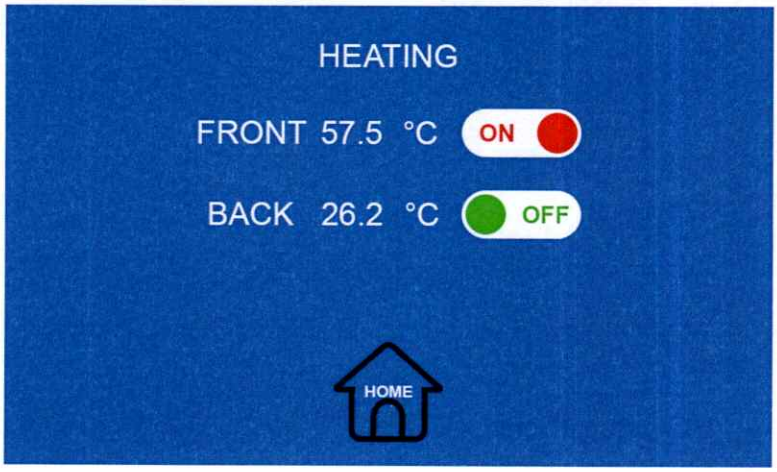


Table 5 - 1 Home Screen

No.	Name	Function
1	Ink Tank Volume	Estimated volume of ink present in the tanks.
2	Waste Tank Volume	Estimated volume of the Wetting and Waste Tanks
3	Navigation Menu	Press the yellow button to navigate between menu screens. • **Heating**: Turn on and off the platen heater • **Light**: Turn on and of the printer lights • **Control**: Turn on and off printer components • **Set**: Adjust settings of the printer components

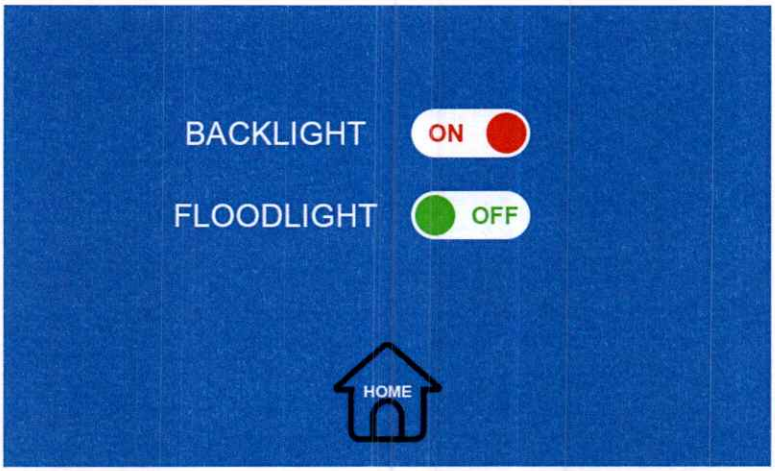
5.1.2 Heater Screen

Press the toggle to turn on and off the front and back heaters to of the printer platen and review current temperature in Celsius. To change the set temperature of the heaters, go to the Settings Screen.



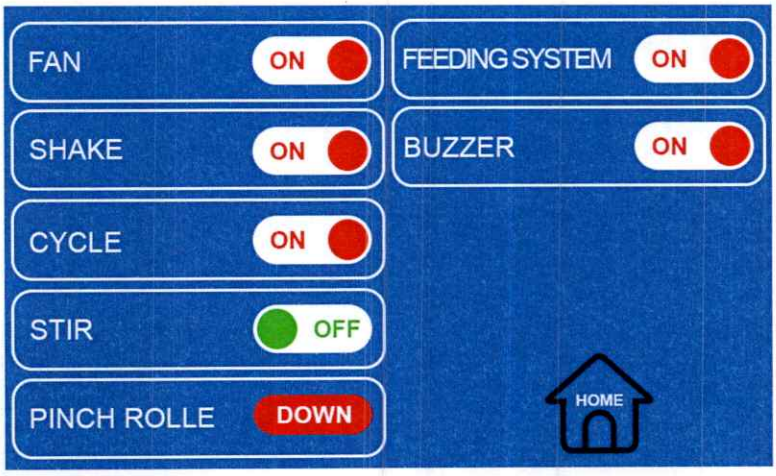
5.1.3 Light Screen

Press the toggle to turn on and off the printer back-light and floodlight.



5.1.4 Control Screen

Use the toggles to turn on and off the printer components or raise and lower the pinch roller. To change the speed of the fan or timing of the ink system, go to the settings screen.



- **FAN**: Turns on and off the printer fans.
- **SHAKE**: Turns on and off the ink roller.

  Place a bottle of white ink on the rollers to prevent pigment settling and gently agitate the ink before loading.

- **CYCLE**: Not in current use.
- **STIR**: Turns on and off the ink mixer.
- **PINCH ROLLER**: Raise and lower the pinch roller bar to hold film in place.
- **FEEDING SYSTEM**: Turn on and off the film feed system. Feed system must be On when actively printing.
- **BUZZER**: Turns on and off the audio ink alarm when the volume of ink in the tanks is low.

5.1.5 Setting Screen

To make changes to a setting, select the box to input new values.

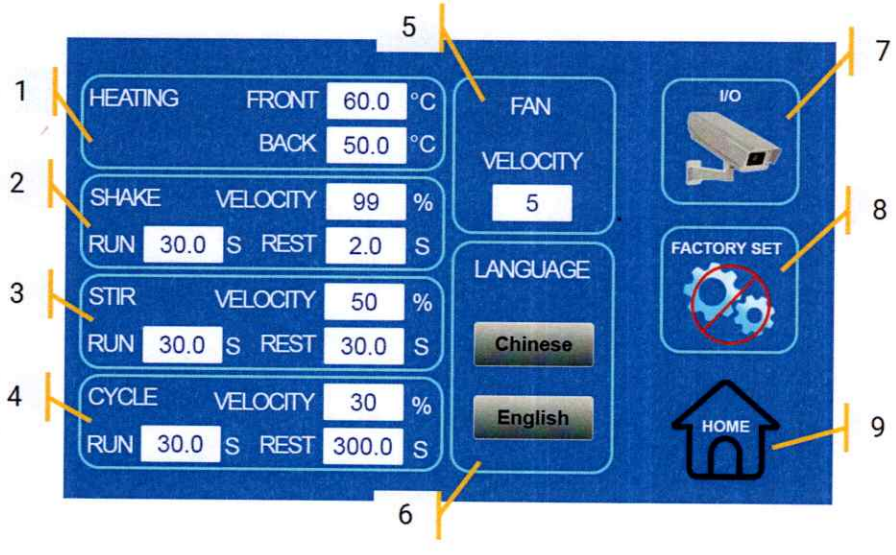


Table 5 - 2 Main Screen

No.	Name	Function
1	Heating	Adjust the temperature of the front and back print platen heaters in Celsius.
2	Shake	Adjust the speed and time settings of the ink roller. • **Velocity**: Speed of the roller. Recommended setting - 90% • **Run**: Time the roller is active. Recommended setting - 30 seconds • **Rest**: Time the roller is inactive. Recommended setting - 2 seconds
3	Stir	Adjusts the speed and time settings of the ink mixer. • **Velocity**: Speed of the roller. Recommended setting - 90% • **Run**: Time the roller is active. Recommended setting - 30 seconds • **Rest**: Time the roller is inactive. Recommended setting - 2 seconds
4	Cycle	Not in current use.
5	Fan	Set the strength of the vacuum fans to hold the film against the platen during printing. • Recommended setting - between 30% and 50%
6	Language	Press the button to select the preferred language for the printer HMI.
7	I/O	Navigate to the I/O Screen to review system sensors.
8	Factory Settings	Press and hold to reset all printer parameters to factory settings.

5.2 Dryer Control Panel

Navigate the settings, reset alarms, and learn important information about the Quatro dryer. The following section explains the names and functions of the menu items on the dryer's control panel also known as the HMI.

5.2.1 Start Up Screen

When the Quatro dryer is powered on the following screen will appear. Screens may vary based on model or software version. The Home Screen will appear when the dryer is ready.

Figure 5 - 1 Quatro 44 Start Up Screen

Figure 5 - 2 Quatro 68 Start Up Screen

5.2.2 Home Screen

Navigate to different screens from the Home Screen. Select the button to open.

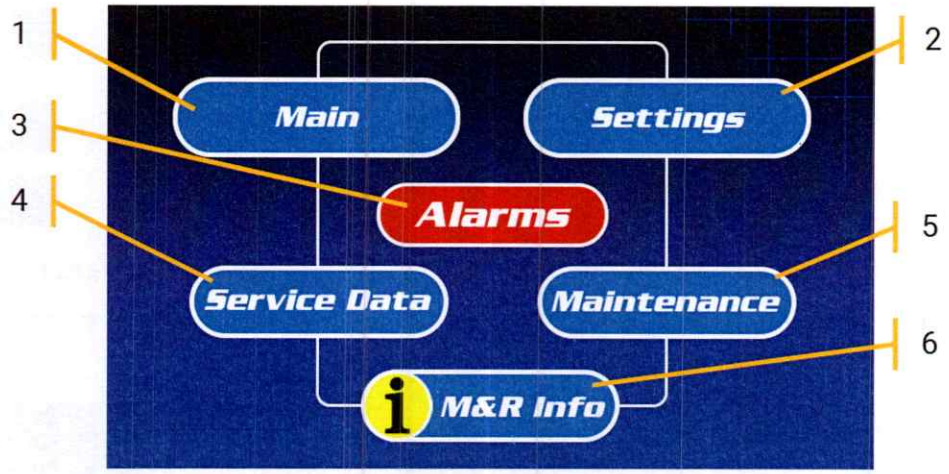


Table 5 - 3 Home Screen

No.	Name	Function
1	Main	Overview of all system components
2	Settings	Adjust dryer and powder shaker settings
3	Alarms	View all active alarms on the dryer
4	Service Data	Restricted access to service data.
5	Maintenance	Estimated usage of dryer consumables
6	M&R Info	System Version and M&R Contact Points

5.2.3 Main Screen

This is the main operational screen. Turn on and off different settings on the dryer while operating the Quatro.

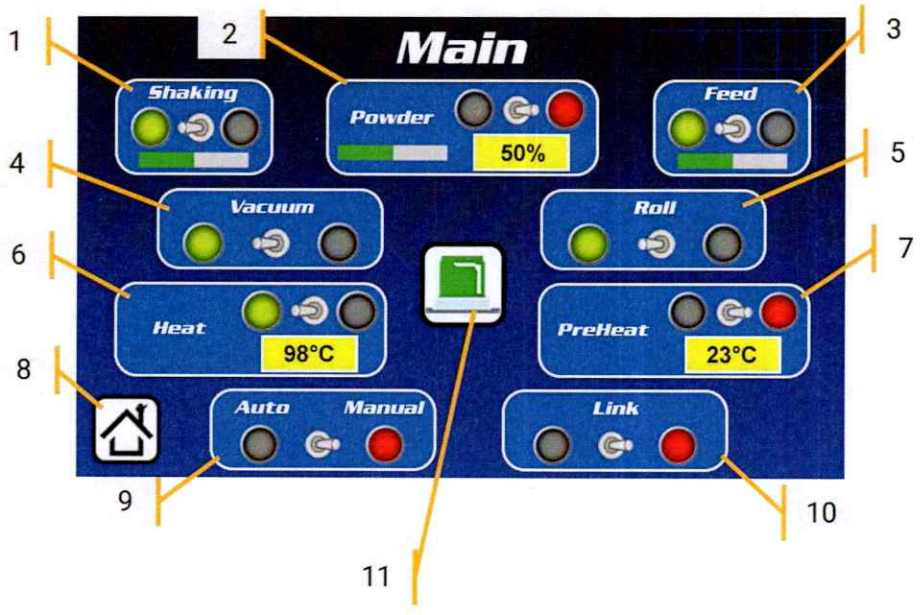


Table 5 - 4 Main Screen

No.	Name	Function
1	Shaking	Toggle: Turn on or off the powder shaker Green Bar: See the powder shaker setting
2	Powder	Toggle: Turn on or off the Powder Dosing Green Bar: See the Powder Dosing setting
3	Feed	Toggle: Turn on or off the dryer belt feed Green Bar: Dryer belt feed speed
4	Vacuum	Toggle: Turn on or off the dryer vacuum to hold the film in transit through the dryer.
5	Roll	Toggle: Turn on or off the take up roller at the end of the dryer.
6	Heat	Toggle: Turn on or off the heat in the dryer. ● The heat must be turned on manually, including when the machine is set to Auto Mode.

No.	Name	Function
		The dryer enters Standby after 3 minutes if the belt does not move. This action reduces the internal temperature to 70°C. The heat increases to its set temperature when the belt moves again, if the dryer is in Auto Mode.
7	PreHeat	Toggle: Turn on or off the Preheat panel before film enters the Powder Shaker. Yellow Box: See the current Preheat Panel temperature in Celsius.
8	Home Button	Navigate to the Home Screen
9	Auto/ Manual Mode	Toggle: Change dryer mode. Auto Mode: Use when running production. Turns on all dryer settings. Does not automatically turn on the heat. Manual Mode: Use when loading film. Turns off all dryer settings. Does not allow for Link to be used.
10	Link	Toggle: Turns on or off Link when in Auto Mode Use when the film roll has finished or has been cut to prevent the film sensors from stopping the Feed and dryer.
11	Alarms	Select the Alarm button to see active alarms. Green: No alarm present to stop the dryer. Red: Alarm present

5.2.4 Settings Screen

Select the light blue box to adjust the temperature and strength of each component in the dryer. To reset the system to the default settings, press and hold the Default button at the bottom of the screen.

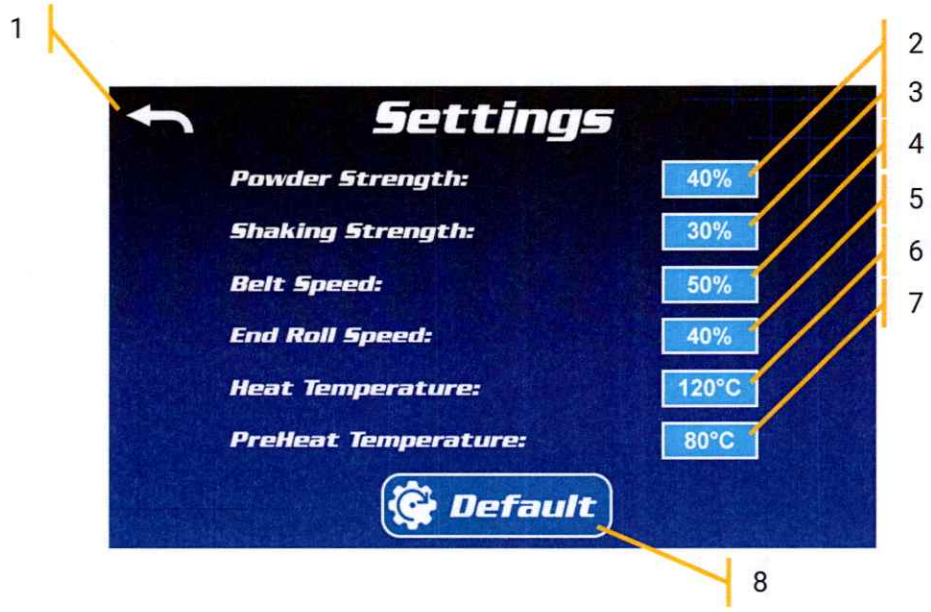


Table 5 - 5 Settings Screen

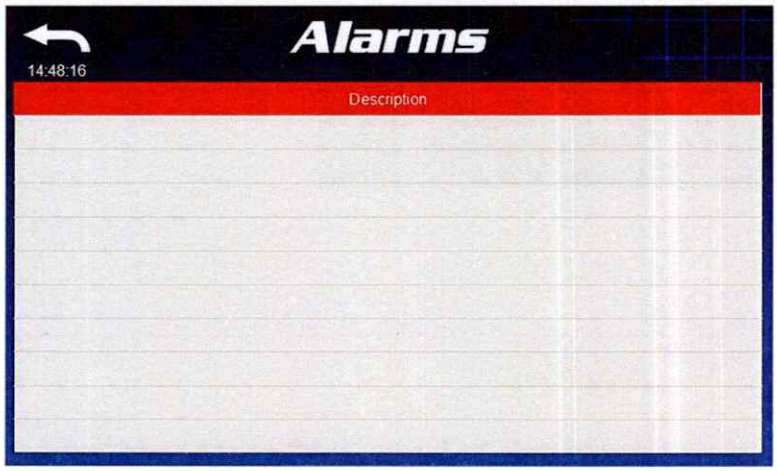
No.	Name	Function
1	Back button	Goes to the Home Screen.
2	Powder Strength	Increase or decrease the amount of powder in the shaker from 0% to 100%.
3	Shaking Strength	Increase or decrease the beater bar strength from 0% to 100%
4	Belt Speed	Increase or decrease the speed of the belt from 0% to 100%
5	End Roll Speed	Increase or decrease the take up roll speed at the end of the dryer from 0% to 100%
6	Heat Temperature Zone 1 Heat Temperature Zone 2	Increase or decrease the temperature in the dryer closest to the printer during operation up to 150°C. Increase or decrease the temperature at the end of the dryer during operation up to 150°C.

No.	Name	Function
7	PreHeat Temperature	Increase or decrease the temperature of the PreHeat Panel from up to 150°C .
8	Default button	Press and hold to reset the above components to factory settings.

5.2.5 Alarms

See active alarms on the Quatro Printer from the Alarms screen. All active alarms are automatically removed when the issue is addressed. Select the Back button in the upper left corner to return to the previous screen.

To see a list of previously cleared alarms, press the History button in the upper right corner to review.



5.2.6 M&R Info Screen

View important information about the Quatro and dryer, including software versions, serial number, and M&R Printing Equipment, INC. Contact Information. Have this product information when contacting the Service or Parts departments.

Table 5 - 6 M&R Info Screen

No.	Name	Function
1	Back button	Goes to the Home Screen.
2	HMI Firmware	Software version of the control panel
3	PLC Control Firmware	Software version of the logic board
4	Product Serial Number	Dryer Serial Number

5.2.7 Maintenance Screen

See the estimated usage of the dryer filters and time until filter maintenance is required. See **Maintaining the Dryer Filters** on page 80 for more information and instructions.

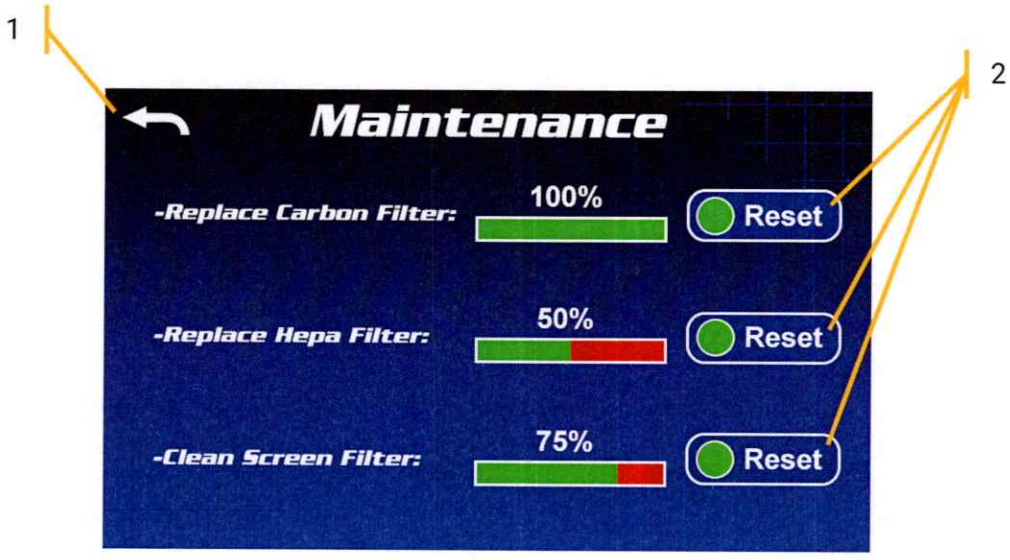


Table 5 - 7 Maintenance Screen

No.	Name	Function
1	Back button	Goes to the Home screen.
2	Reset button	Press twice to reset the timer.

5.2.8 Service Data Screen

Provides access to I/O status, counters, and service data. Service Data content is for authorized users and M&R Service Technicians use only.

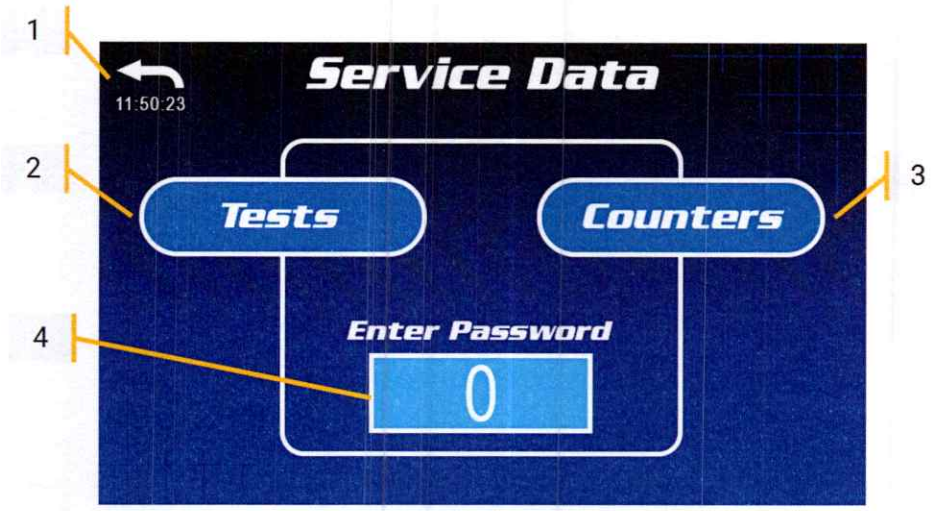


Table 5 - 8 Service Data

No.	Name	Function
1	Back button	Goes to the Home screen.
2	Tests button	Goes to I/O Tests Screen
3	Counters button	Goes to the system counters
4	Restricted Service Data Access	Enter password to access the restricted service data. Access is for authorized users and M&R Service Technicians only.

5.3 PrintEXP Software

This section explains the names and functions of PrintEXP, the Quatro Printer queue management software.

5.3.1 PrintEXP Workspace

Figure 5 - 3 PrintEXP Workspace overview

Table 5 - 9 Workspace

No.	Name	Function
1	Workspace Menu	Switches to a different workspace and other system controls.
2	Top Tool Bar	Contains tools to control the Quatro Printer.
3	Side Panel	Displays tools for each workspace.
4	System Status Bar	Monitors the connection between the PC and the Quatro Printer.
5	Job Window	Displays a preview of the job your are working on and relevant job data.

5.3.2 Workspace Menu

The workspace menu is used to switch the workspace and side panel tools. The side panel tools change based on the active workspace.

Figure 5 - 4 Workspace menu overview. Example shows the Print Workspace is active.

No.	Name	Function
1	File	Navigate files on the PC and see file.
2	Print	Queue and manage job settings before sending to the printer.
3	Setting	Displays tools for each workspace.
4	Adjust	Monitors the connection between the PC and the Quatro Printer.
5	Voltage	Displays a preview of the job your are working on and relevant job data.
6	Advance	Software Settings and version information

Table 5 - 10 Workspace Menu

5.3.3 Top Toolbar

Figure 5 - 5 Top Tool Bar Overview. Example shows Print, Pause, and Cancel buttons are inactive.

Table 5 - 11 Top Toolbar

No.	Name	Function
1	OpenFiles	Opens a windows explorer window to add files to the queue.
2	Print	Send highlighted job from the queue to the printer.
3	Pause	Temporarily stops all print activity. Select again to restart printing.
4	Cancel	Stops and removes print data for the current job.
5	Check	Print a nozzle check. Only available if no job data is being sent to the printer.
6	Clean	Perform an automated cleaning cycle. Select the cleaning level from the pop-up window.
7	Margin	Adjust the distance prints will start from the edge of the print area.
8	Left	Move the carriage to the left.
9	Right	Move the carriage to the right
10	Ahead	Feed film through the printer towards the dryer.
11	Back	Feed film backwards through the printer away from the dryer.
12	X Reset	Caps the carriage over the capping station
13	Spot	Enable/ Disable Spot Color Inks and ink channel location. *This is not a functioning feature for the Quatro 44 or Quatro 68*
14	Load	Load Job data
15	Save	Save Job data

6. Maintenance and Troubleshooting

This section contains the following content.:

6.1 General Cleaning **68**
6.1.1 Clean the Outer Printer Body and Dryer 68
6.1.2 Clean the Print Area 68
6.2 Cleaning the Capping Assembly, Wiper Blades, and Printhead Plate **71**
6.3 Cleaning the Dryer Hood and Heat Reflectors **75**
6.4 Applying Grease to the Carriage Bearings **78**
6.5 Maintaining the Dryer Filters **80**
6.6 Replacing the Main Ink Filters **85**
6.7 Replacing Printhead Dampers **89**
6.8 Replacing the Peristaltic Pump Tubing **96**
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6.10.1 Troubleshooting 101
6.10.2 Quick Step Adjustment 102
6.10.3 Printhead Step Alignment 105

6.1 General Cleaning

General cleaning is an essential practice to ensure the unit operates efficiently and maintains the quality of the output. Clean the following areas as part of scheduled maintenance or as needed.

6.1.1 Clean the Outer Printer Body and Dryer

Clean the outer body of the printer and dryer, including vents daily to prevent dust and debris from collecting.

Clean the Printer

1. Use a dry cloth or rag to wipe down the outside of the machine.
2. Inspect the ink tanks and lines for drips or leaks using cleaning solution to remove them with a cloth.

Clean the Dryer

1. Use a dry cloth or rag to wipe down the outside of the dryer including the fans at the end of the dryer.
2. Remove any TPU Powder that may be sitting on the Powder Box, Powder Trays, or the surface between the printer and dryer.

6.1.2 Clean the Print Area

Clean the print area including the platen, film edge guards, pinch rollers, and linear carriage rail weekly or as needed.

Table 6 - 1 Required Tools

Description	QTY	M&R Part Number
Lint Free Cloth	-	5020586
3 in 1 Oil	-	-

Clean the Platen

1. Remove film from the print area.
2. Open the main cover to access the print area and platen.
3. Use a clean lint free cloth and water to remove any ink build up, dust, or debris from the platen (1) and film edge guards (2).

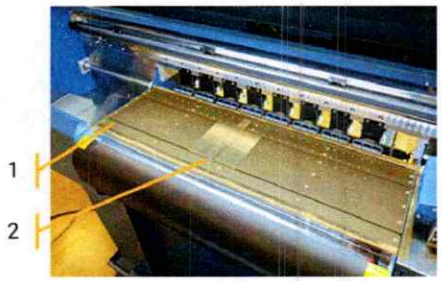


Figure 6 - 1 *Clean the highlighted area with a clean lint free cloth and water.*

Clean the Pinch Rollers

1. Raise the pinch rollers from the printer HMI.
2. Use a clean lint free cloth and water to remove any ink build up, dust, or debris from the pinch rollers and pinch roller assembly.

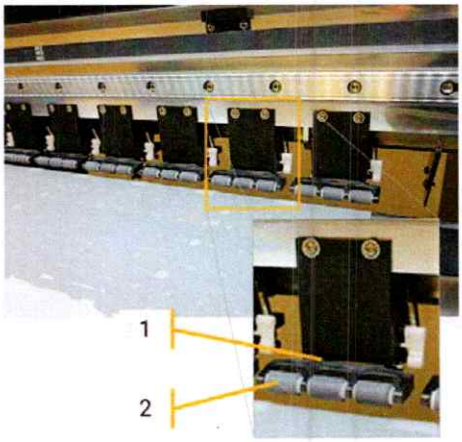


Figure 6 - 2 *Detailed view of the assembly (1) and pinch rollers (2).*

3. Lower the pinch rollers when cleaning the pinch rollers is complete.

Clean and Lubricate the Linear Carriage Rail

1. Move the printhead carriage to the center of the print area to access the rail.
2. Apply 3-in-1 Oil to a clean lint free cloth and wipe the surface and bearing rail to remove any dust and debris, moving the carriage left and right as needed.

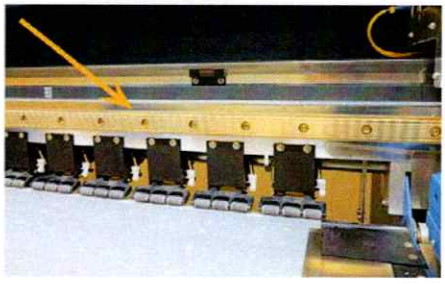


Figure 6 - 3 *Clean the Carriage Rail surfaces, including the top and bottom where the carriage bearings sit.*

3. Return the carriage back to the capping station and select X Reset/ Home in the PrintEXP Software to cap the printheads and complete the cleaning.

6.2 Cleaning the Capping Assembly, Wiper Blades, and Printhead Plate

Clean the capping station, wiper blades, and printhead plate daily at the end of the shift or when production is finished.

- For Quatro 44, there are 4 caps and 4 wipers to be cleaned.

  For Quatro 68, there are 6 caps and 6 wipers to cleaned.

Table 6 - 2 Required Tools

Description	QTY	M&R Part Number
Quatro Cleaning Solution	1	QTRO-CLEAN-1
Lint Free Wipe	1	5020586
Foam Tip Swabs (Optional)	-	5029067
Volume Syringe or Wash Bottle	-	7MD0007

⚠ CAUTION

Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

NOTICE

To prevent damaging the printheads:

- Do not directly wipe the printheads, even with a lint free cloth. The printhead surface may scratch and cause dripping.
- Do not clean the printhead plate with a dry lint-free cloth or foam tipped swab. Ensure the cloth or swab is dampened with Quatro Cleaning Solution first.
- Always use clean and new wipes or swabs between color ink and white ink

to prevent contamination.

- Do not leave dried ink on the caps or wiper blades.

Move the carriage

1. Select and hold the Left button from the tool bar to move the carriage. Hold the button until the carriage has moved to the head maintenance position at the far end of the printer.

2. Open the main cover to access the capping station and printhead maintenance areas.

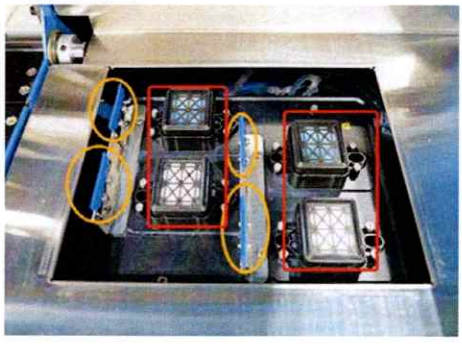


Figure 6 - 4 Example of a clean Quatro 44 capping station. Clean the highlighted areas. Quatro 68 printers have an additional 2 caps and 2 wiper blades for a total of 6 of each.

Clean the Capping Station and Wipers

3. Apply cleaning solution to a new lint-free wipe or foam tipped swab.
4. Use the wipe or swab to remove ink and debris from around the White Ink wiper blades then caps. Replace the foam tipped swab and cloth as necessary to remove all excess ink and prevent ink contamination.
    - Be careful to not rip or tear the rubber on the wiper blades or caps.

Figure 6 - 5 Cleaning around the capping station to remove excess White Ink.

Figure 6 - 6 Cleaning around the capping station to remove dried ink and debris.

5. Repeat the previous 2 steps to clean the Color Ink wiper blades then caps.

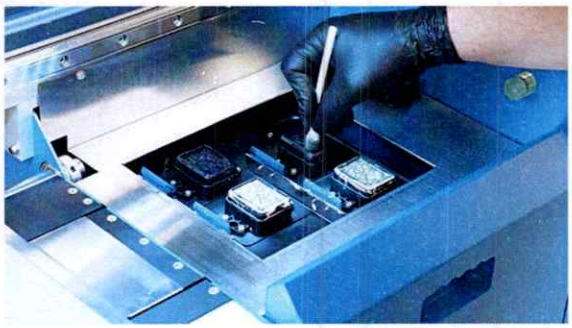


Figure 6 - 7 Cleaning around the capping station to remove excess Color Ink.

Figure 6 - 8 Cleaning around the capping station to remove dried ink and debris.

6. Inspect the caps.

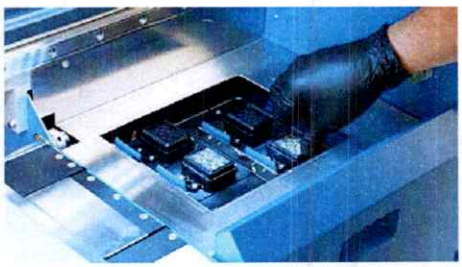


Figure 6 - 9 Press down on each cap. Each cap should move smoothly and quickly pop back up.

7. Put cleaning solution into the caps with a syringe or wash bottle.

Figure 6 - 10 Fill caps half full with cleaning solution.

- Do not overfill the caps.

  Caps should be filled no more than half-way other to prevent cleaning solution to be pulled into the heads or ink to bleed between channels.

Clean the Printhead Plate

8. Apply cleaning solution to a new lint-free wipe.
9. Use the wipe to remove dried or excess ink from around the printheads.

Figure 6 - 11 Clean the area yellow highlighted area. The example is of the Quatro 44 carriage. The Quatro 68 has 6 printheads.

10. Close the main cover then select X Reset from the top toolbar to move the carriage back to the home position.

6.3 Cleaning the Dryer Hood and Heat Reflectors

Clean the hood and around the reflectors at least once per week or as needed to prevent glycol from accumulating within the dryer hood.

- Clean the dryer when cool like first thing in the morning or at the start of a shift.

Table 6 - 3 Required Tools

Description	QTY	M&R Part Number
Wypall L40 Screen Wipes or Shop Towels	-	5050002

⚠ CAUTION

Reflectors are close to the Quartz Flash Bulbs and get very hot and will cause burns.

- Dryer must be powered Off before starting and internal temperature must be below 80°F or 26°C before starting.

Dryer hood components are sharp and will cut or cause injury. Use caution when accessing the interior spaces.

NOTICE

Avoid touching the Quartz Bulbs with bare skin, gloves that may have grease or oil on them, and cloths from cleaning the dryer hood to prevent premature failure.

Open the Dryer Vent Door and Hood

1. Raise the dryer hood lid to access the interior allowing the cooled glycol to collect at the base of the hood. Use the film to prevent glycol from dripping directly on the belt. If no film is available, place towels or wipes under the hood area.

Clean the Hood and Reflectors

2. Wipe the surfaces of the hood interior starting at the top, paying close attention to the edges of the dryer.

Figure 6 - 12 *Clean the highlighted area of any build up.*

Figure 6 - 13 *Use the reflection to see the interior spaces for glycol collecting along the rim.*

3. Wipe the edges of the reflectors starting from the top and working your way to the bottom.

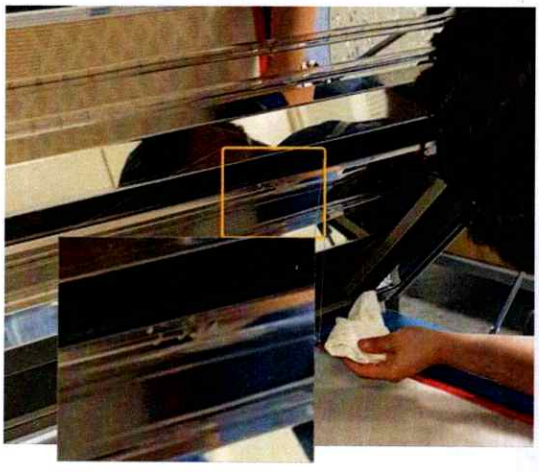


Figure 6 - 14 *Example of dripping on the edges of the reflectors.*

Figure 6 - 15 *Wipe edges of the reflectors being careful to not touch the bulbs.*

4. Clean the bottom of the hood interior removing all excess glycol that collected during this process.

Figure 6 - 16 *Clean the bottom of the dryer hood, removing as much excess build up as possible.*

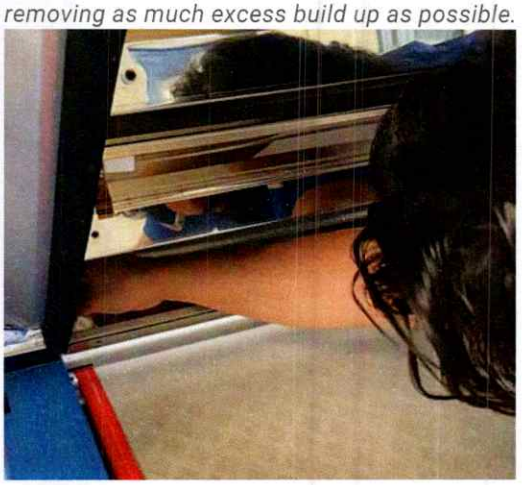


Figure 6 - 17 *Clean the corners being careful of any wires and sharp edges.*

5. Remove any drips that may have landed on the film or discard the towels that may have been placed to catch them.
6. Close the dryer hood to finish.

6.4 Applying Grease to the Carriage Bearings

Apply grease to the printhead carriage linear bearings every 2 months or as needed to maintain smooth and quiet carriage movement.

Table 6 - 4 Required Tools

Description	QTY	M&R Part Number
Synthetic Grease, Super Lube with Teflon 14.5 oz Tube	1	7018034
Lint Free Cloth	-	5020586
Standard Pump Action Grease Gun	-	-

> **⚠ CAUTION**
>
> Printhead carriage may move unexpectedly causing injury. Engage the printer Emergency Stop button to ensure there is no mechanical movement during this task.

> ***NOTICE***
>
> Only apply grease to the bearing fittings. Remove any excess grease to prevent it from getting on the printhead encoder or other sensitive components.

Prepare printer and printhead carriage

1. Move the printhead carriage from the capping station for better access to the bearing locations.

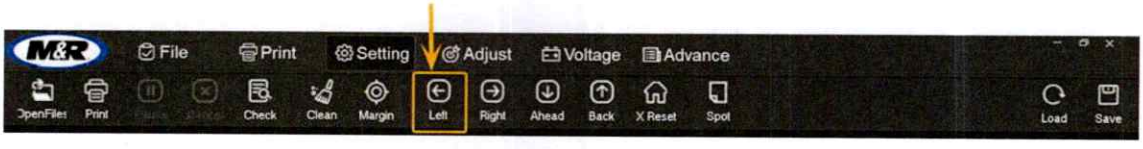


Figure 6 - 18 Select and hold the left and right arrow keys to move the carriage

2. Engage the printer Emergency Stop button located on the right side of the printer.
3. Open the main cover to access the printhead carriage.

Apply grease to the linear bearings

4. Connect the grease gun to the fitting and slowly apply pressure to the handle until resistance is felt. Repeat this step for the other side.

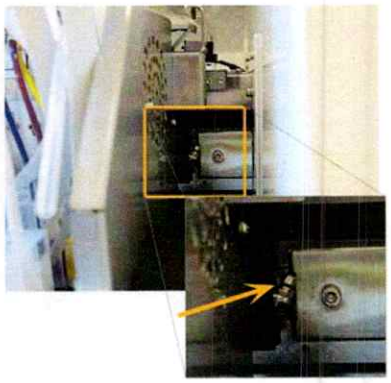


Figure 6 - 19 *Right-side fitting location*

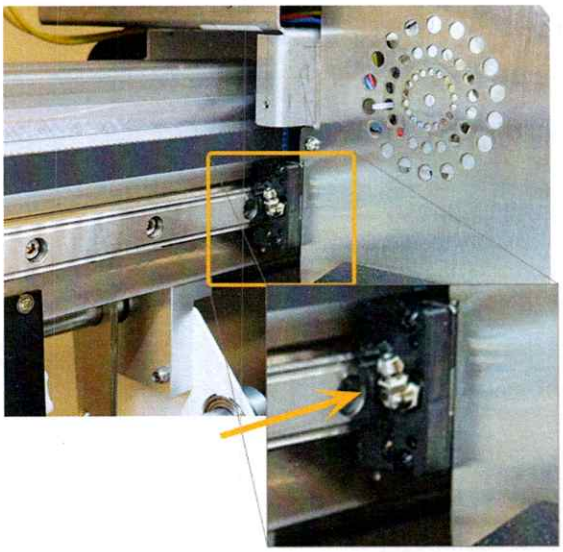


Figure 6 - 20 *Left-side fitting location*

5. Inspect the encoder for any excess grease and remove if present.
6. Move the carriage close to the capping station and release the Emergency Stop.
7. Close the main cover then select the X Reset/ Home button in the top toolbar of the PrintEXP software to cap the carriage.

6.5 Maintaining the Dryer Filters

Replace the Carbon and HEPA filter and clean the Stainless Steel Filter every 3 months or when the airflow is too restricted to maintain sufficient airflow.

Table 6 - 5 Required Supplies

Description	QTY	Part Number
HEPA Filter	1	9DF1090003
Carbon Filter	1	9DF1090004

⚠ CAUTION

Dryer may be hot. Turn off dryer and wait until the equipment is cool to the touch before starting.

Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

Access the dryer filters

1. Open the Filter Access Door on the left side of the dryer.

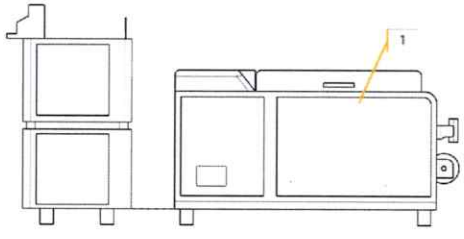


Figure 6 - 21 *Filters are located on the left side of the dryer (opposite side of the PC and HMIs).*

2. Release the 2 lid clamps from the side of the filtration system.

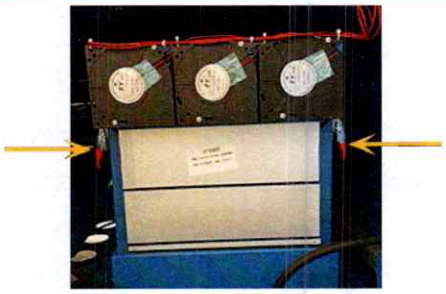
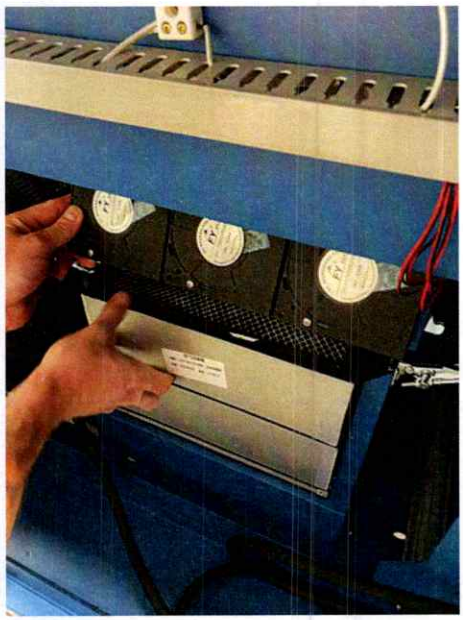


Figure 6 - 22 Release 2 lid clamps. Additional lid clamp is on left side of the fans.

3. Move the fans to access the filters.



Clean and Replace the filters

4. Remove and discard the old Carbon and HEPA filters.

5. Remove and wash the Stainless Steel Filter using warm soapy water to remove any debris or build up. Dry the filter before placing back into the dryer.

6. Place the new filters in the correct order:
    1. Carbon Filter (top)
    2. HEPA Filter (middle)
    3. Stainless Steel Filter (bottom)

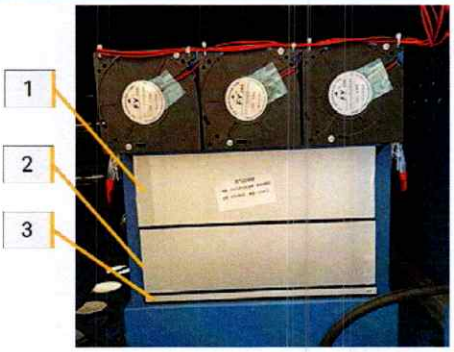


Figure 6 - 23 *Example of the filters stacked in the correct order*

7. Ensure each filter is aligned properly.

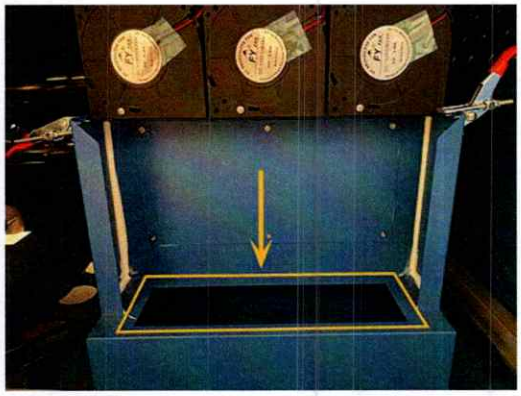


Figure 6 - 24 *Align the Stainless Steel Filter with the back of the assembly and over the vent.*

Figure 6 - 25 *Stainless steel filter in the correct location and orientation.*

Secure the Filters and Reassemble

8. Place fan assembly over the filters aligning the lid clamps, and secure the left and right sides.

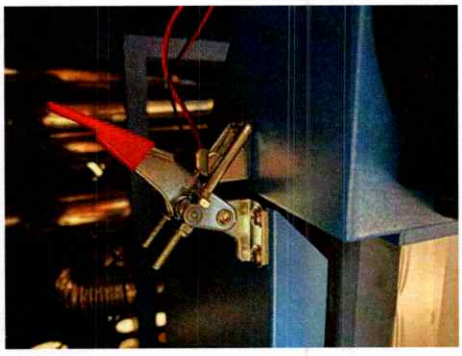


Figure 6 - 26 *Unsecured fans aligned with the clamp on the left side.*

9. Close the door.
10. Power On the dryer.

11. Reset the Maintenance Timers from the dryer HMI to finish.
    - See Maintenance Screen on page 61 details for more information.

6.6 Replacing the Main Ink Filters

Replace the Color Ink Filters every 6 months and the White Ink Disc Filters and Capsule Filters every 2 months or as needed.

Table 6 - 6 Required Tools

Description	QTY	M&R Part Number
Main Ink Filter (20 Micron Disc Filter)	1	7990178
White Ink Capsule Filter	1	2MD0012
Wypall or Towel	-	5050002

⚠ CAUTION

Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

Remove the Main Ink Filter

1. Remove the 2 screws beneath the panel below the Main Ink tanks to access the filters.

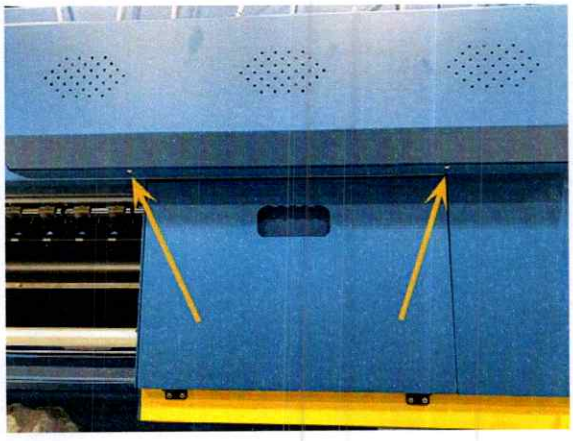


Figure 6 - 27 Location of screws to remove the panel covering the filters.

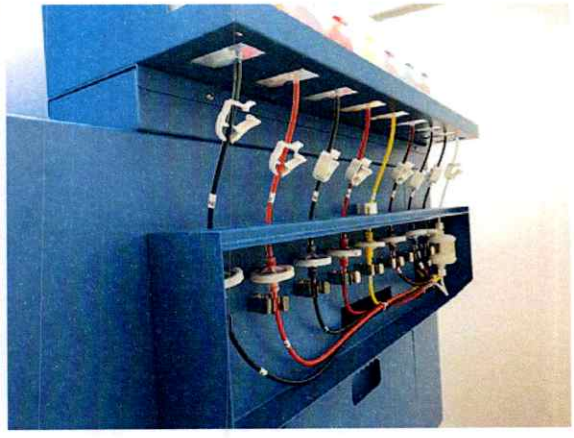


Figure 6 - 28 Panel removed for filter access.

2. Use the ink-line crimper to close the ink supply line to the filter that will be replaced. Ensure the line is fully closed and no ink is leaking.

Figure 6 - 29 *Example of closed crimper/ hemostat on white ink supply line. Closing ink supply reduces ink dripping or leaking from the filter.*

3. Disconnect the ink supply lines from the bottom connection then top of the filter. Dispose of the old filter.

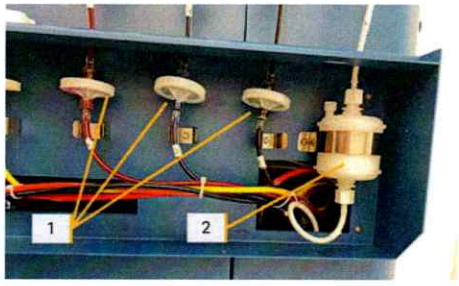


Figure 6 - 30 *Detail view of Main Ink Filters (1) and White Ink Capsule Filter (2).*

Prepare and Connect the New Filter

4. Clean any ink build-up on or around the connectors.

Figure 6 - 31 *Clean the connectors of ink build up or debris.*

5. Locate the side of the new Main Ink filter marked IN (1). Mark the date on the new filter using a marker near the in-feed (2). This side of the filter will face up when connected.

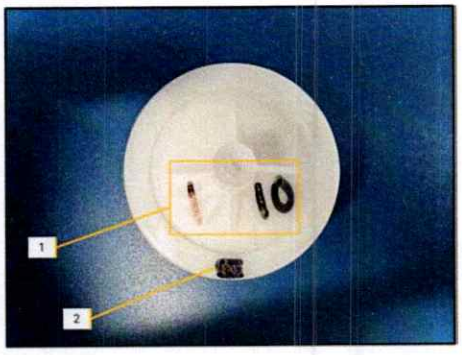


Figure 6 - 32 Detail of filter with in-feed marked with date the filter was replaced.

6. Connect the ink supply lines, ensuring the "IN" side is facing up. Tighten the connector to prevent air leaks.

Figure 6 - 33 New filter reconnected with "IN" facing up.

7. Remove the ink line crimper to restore ink flow.

Figure 6 - 34 Released crimper tool

Restore and Prime the Ink System:

8. In Print EXP Settings Workspace (1), select "INK LOAD" (2). Allow it to run for 20 seconds then press Stop (3).

Figure 6 - 35 PrintEXP Settings Workspace Detail

9. Perform a STRONG clean then print a nozzle check to ensure proper function.

See **Perform a Strong Clean on all heads in the PrintEXP software.** on page 31 and **Printing a Nozzle Check** on page 47 for more information.

6.7 Replacing Printhead Dampers

Replace the printhead dampers as part of a scheduled maintenance task or as needed.

Table 6 - 7 Required Tools

Description	QTY	M&R Part Number
Damper	1	7MD0008
Wypall Screen Wipes	-	5050002
Lint Free Cloths	-	5020586
Foam Tipped Swab	-	5029067
Tubing Cutter	-	-
Allen Wrench 2.5 mm	-	-
Line Crimp or hemostat	-	-

⚠ CAUTION

Review the Safety Data Sheet (SDS) for any PPE, storage, and handling requirements before starting this activity.

NOTICE

The Quatro Printer must be fully powered down to prevent electrical damage to the printheads, boards, and other sensitive electronics.

Prepare the printer

1. Move the print carriage to the maintenance position (left side) from PrintEXP.

Figure 6 - 36 Press and hold the Left button to move the carriage

2. Power Off the Quatro.
   - Press the red Emergency Stop button on the printer.
   - Press the green Power button on the dryer.
   - Turn the main power switch to Off.

Remove the old damper

3. Unscrew the two thumb screws to remove the front cover from the print carriage.

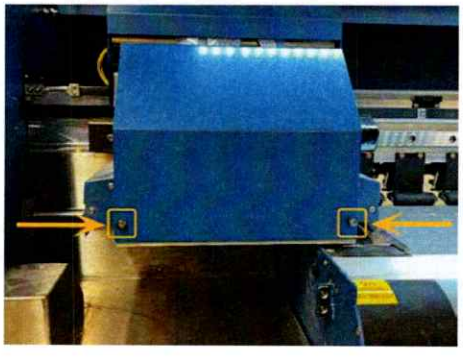


Figure 6 - 37 Remove the cover to access the printheads and dampers

4. Loosen the two side screws of the damper holder bracket with a 2.5 mm hex wrench and slide the damper holder bracket up to remove.

   TIP: Do not remove the side screws.

Figure 6 - 38 *Loosen the 2 screws to remove the jacket - highlighted in yellow.*

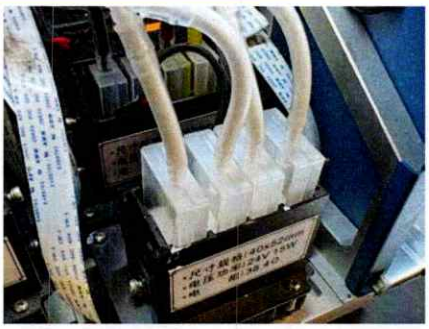


Figure 6 - 39 *Printhead with damper jacket removed.*

5. Place a clean cloth over the printhead ribbon contact points to protect the ribbon cable and print head from dripping ink.

Figure 6 - 40 *Printhead ribbon cables covered to protect from ink.*

6. Crimp the ink line to the damper using a hemostat or ink line crimper.

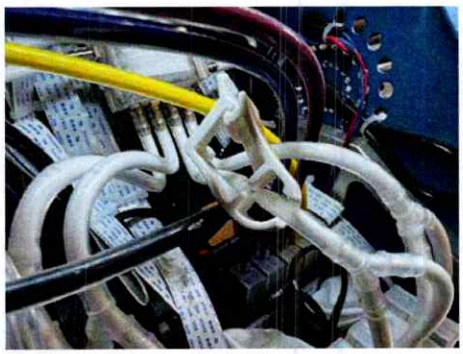


Figure 6 - 41 *Ink line to damper secured to reduce ink dripping.*

7. Remove the damper by carefully wiggling it and lifting it straight up. Place the removed damper into a glove or cup to catch any excess ink.

   TIP: Squeezing the front/ back of the damper will cause ink to leak. Hold the outer edges of the damper to prevent ink leaking from the bottom of the

damper when handling.

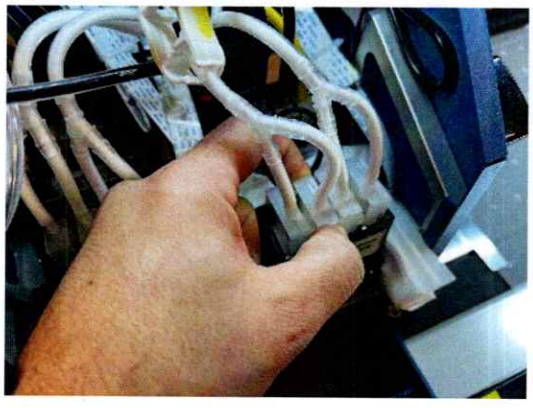


Figure 6 - 42 Removing damper from printhead.

Figure 6 - 43 Holding damper on the side to prevent dripping.

8. Cut the damper off the ink supply line using side cutters or tubing cutters just above the barb of the damper. Clean any ink that drips from the supply line immediately.

Figure 6 - 44 Cut damper close to the damper barb.

Install the new damper

9. Inspect the new damper for damage.
    - Look for broken plastic, cuts, or open film.
    - Verify the spring presses in and releases without sticking.
10. Insert the barb of the new damper into the ink supply line.
    - The supply line must sit at the bottom of the barb to prevent air entering the lines.
11. Prime the damper by pulling between 3 and 5 ml of ink through the damper into a syringe to ensure there is no damage to the damper or air in the lines.

- Hold the damper upright and insert the syringe into the outlet of the damper.
- Create a seal between the damper gasket and syringe by pressing slightly.

Figure 6 - 45 *Priming damper to ensure ink is through the lines and there is no damage or leaks.*

12. Clean the printhead damper connection with a clean and dry foam tipped swab.

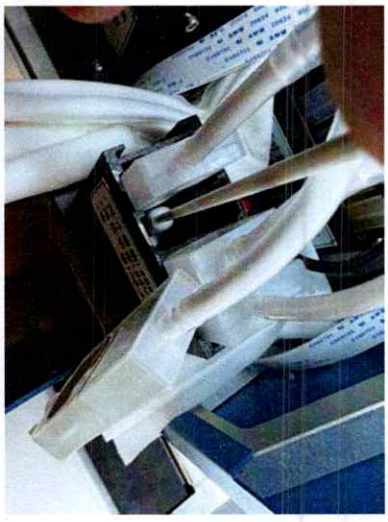


Figure 6 - 46 *Removing dry or excess ink from internal printhead barb.*

13. Place the new damper into the damper jacket holder, ensuring it is seated properly.

    TIP: Position damper with the barb closest to the front of the printhead and aligned with the other dampers. The damper barb is not centered on the top of the damper. All dampers should sit flush with each other.

Figure 6 - 47 Pressing the new damper to secured.

14. Reattach the damper bracket and hand tighten the side screws. Do not use the 2.5 mm hex wrench to tighten.

Figure 6 - 48 Hand-tighten the identified screws.

15. Remove the protective cloths from the ribbon cable area.

Reassemble and Prime the Printer

16. Slide the print carriage carefully back towards the capping station, stopping approximately 6 inches from the capping station.
17. Power On the Quatro DTF printer.
    - Turn On the Main Power switch.
    - Release the red Emergency Stop button on the printer.
    - Press the green Power button on the dryer.
18. In Print EXP Settings Workspace (1), select "INK LOAD" (2). Allow it to run for 15 seconds then press Stop (3).

Figure 6 - 49 PrintEXP Settings Workspace Detail

19. Perform a "STRONG clean" then print a nozzle check to ensure proper function before re-starting production.

    ↗ See **Perform a Strong Clean on all heads in the PrintEXP software.** on page 31 and **Printing a Nozzle Check** on page 47for more information.

6.8 Replacing the Peristaltic Pump Tubing

Replace pump tubing if leaking, if caps drain too slowly, or as needed.

Table 6 - 8 Required Tools

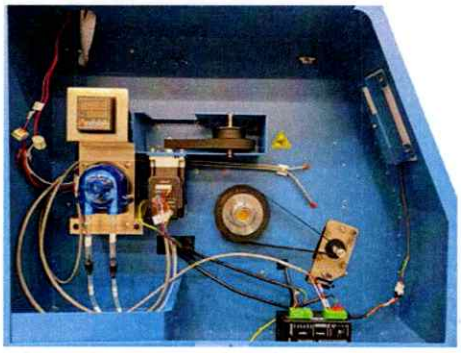
Description	QTY	M&R Part Number
Peristaltic Pump Tubing	1	9CN03910003

> **⚠ CAUTION**
>
> The ink system and pumps may turn on unexpectedly. Turn off the Quatro before starting this task to prevent injury.

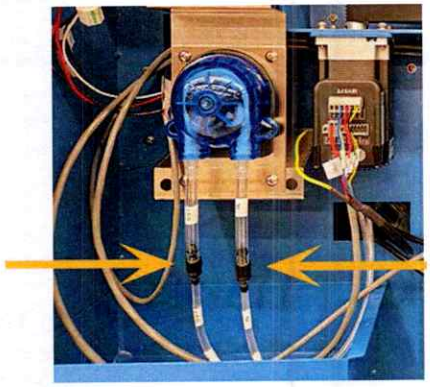
> ***NOTICE***
>
> Do not use sharp tools, like the tip of a screwdriver, to place the tubing into the center of the pump. Tools may tear the tubing or cause incorrect placement causing additional problems.

Remove the Pump

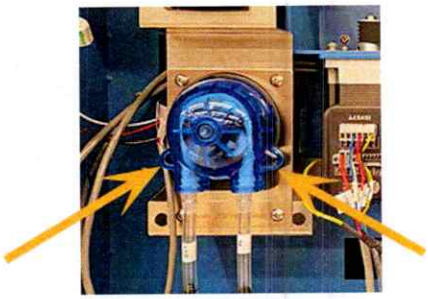
1. Access the pump from the left side electrical compartment of the printer.



2. Disconnect the tubes from the filter.



3. Remove the 2 screws holding the pump to the bracket.

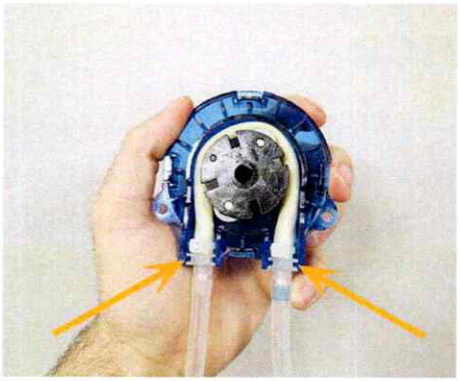


4. Turn the pump to the left (counter-clockwise) to remove the pump.

Replace the Tubing

5. Remove the old tubing.
   - TIP: Hold the center of the pump in your hand with the tubing facing up.

6. Use your fingers to gently push the new tubing into channel being careful to not twist or pinch the tube.
7. Align the clips into the pump to keep the tubing in place.



8. Reverse the instructions for removing the pump to reassemble.
9. Inspect and verify the pump is not leaking and ink is flowing as expected to finish.

6.9 Scheduled Maintenance

To keep your Quatro 44/ 68 in good condition, perform all listed maintenance tasks and inspect your equipment according to the schedule below. This schedule is based on an 8 hour shift in the recommended environment. Increase the frequency if the equipment is used for more than 8 hours per shift, if multiple shifts are run each day, or the environment is not optimal.

Every Day:

- ☐ Clean the head-plate, capping station, and wiper blades
- ☐ Clean the outer body of the printer and dryer

Every Week:

- ☐ Clean the linear rail
- ☐ Clean the dryer heat reflectors
- ☐ Wipe the pinch rollers, platen, and encoder rail

Every 2 Months:

- ☐ Replace the White Ink filters
- ☐ Apply grease to the printhead carriage linear bearings

Every 3 Months:

- ☐ Replace the dryer's HEPA and Carbon Filters
- ☐ Clean the dryer's Steel Filter

Every 6 Months:

- ☐ Replace the Color Ink filters
- ☐ Flush the White Ink system - Performed by an M&R Service Tech Only

As Needed Based on Production:

- ☐ Replace the recirculation pump tubing
- ☐ Replace the printhead dampers
- ☐ Replace the wiper blades

6.10 Troubleshooting

When an issue arises on the Quatro, follow these steps to understand and identify what may be causing it:

1. **Evaluate possible causes**: This will guide you in determining the relevant troubleshooting actions.
2. **Ask the right questions**: Use the answers to rule out topics, components, and areas from the possible causes.

Questions to identify an issue:

- What error or alarm appears on the control panel or operator interface screens?
- What quality issue is occurring?
- What was the last action on the Quatro before the error, issue, or quality concern occurred? (Check with operators from other shifts.)
- What area of the system could be causing the issue?
- Was any maintenance performed on the Quatro recently? If yes, what was done and what issue required fixing?
- Were any system settings changed? (Check with operators from other shifts.)
- Are there any unusual noises?

Additional Steps:

Visual Inspection: Check for anything unusual.

Print Standards: Print several well known images on a high quality garment to compare with to help identify changes. Save good prints to use for future comparisons.

Garment MFG Lots: Check for changes in garment manufacturing lot numbers and manufacturing location.

6.10.1 Troubleshooting

Below is a table summarizing common problems, their probable cause, and the recommended solutions.

Problem:	Troubleshooting Steps:

Nozzle check has a few missing nozzles or areas	1. Ink may be dried in the nozzle.
	  1. Perform a strong clean.
	2. The capping station may not have a good seal.
	  1. Clean the printhead plate, capping station and wiper blades, ensuring there is no debris on the gaskets or wiper surface.
	3. The main filters may be clogged
	  1. Replace the main filters for the effected ink color
	4. The dampers may be clogged
	  1. Replace and prime the dampers
	5. The printheads may be old or damaged
	  1. Replace the Printhead
	6. If the above steps do not resolve the issue, **Contact M&R Service and Support** on page 119.

There is a small misalignment between the color and white ink layers.	1. Film feeding system may not be moving the film through the system.
	  1. Verify the pinch rollers are down and the feeding system is on from the printer HMI
	2. Film step may need to be adjusted.
	  1. Use **Quick Step Adjustment** on the next page

Problem:	Troubleshooting Steps:
	2. Run **Printhead Step Alignment** on page 105 3. If the above steps do not resolve the issue, **Contact M&R Service and Support** on page 119.

Table 6 - 9 Troubleshooting Issue Guide

6.10.2 Quick Step Adjustment

You can correct misalignment between white ink and color ink layers using either of two methods:

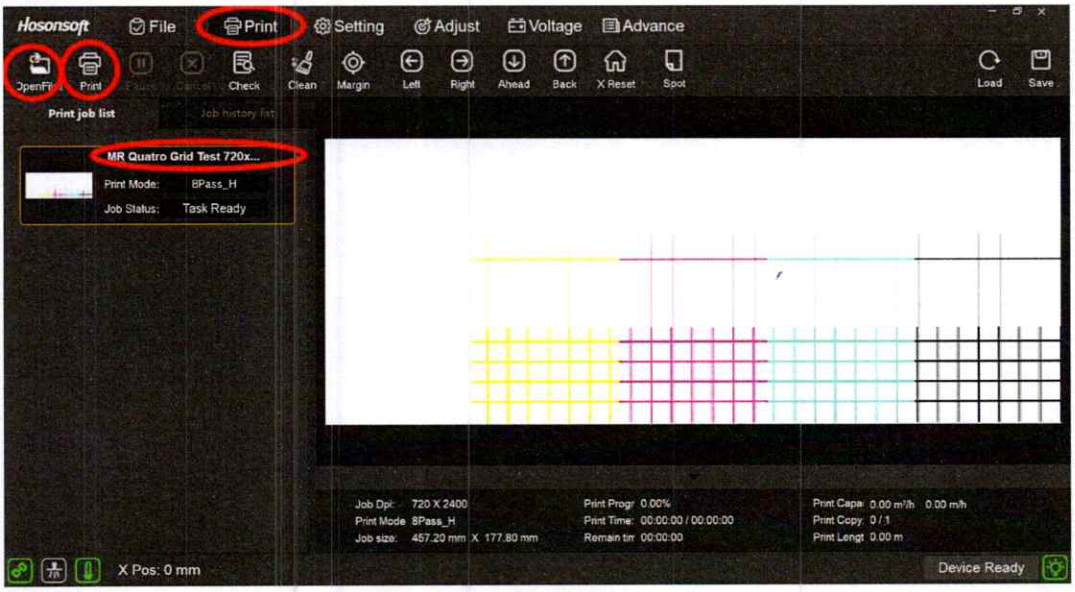
- Live Step Adjustment during printing
- Printhead Step Adjustment using a test pattern

Download the M&R Quatro Grid Test ZIP File from the SM&RT Academy.

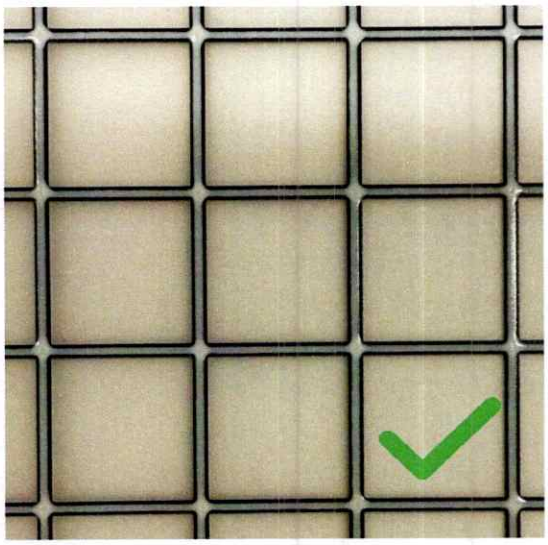
6.10.2.1 Live Step Adjustment

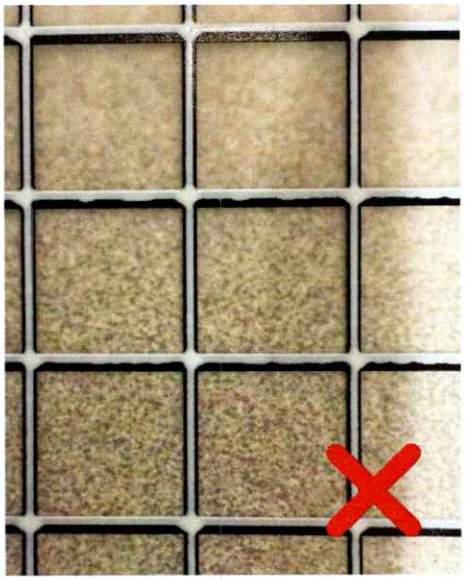
Use this method to adjust the step value during printing. Use the M&R Quatro Grid Test file or an image with clean horizontal lines.

1. Open PrintExp and go to the Print tab.
2. Load the Grid Test file and Print.
    - Set the print resolution to 720 X 2400 and image size to 18 inches wide by 7 inches long when using the Grid Test file.

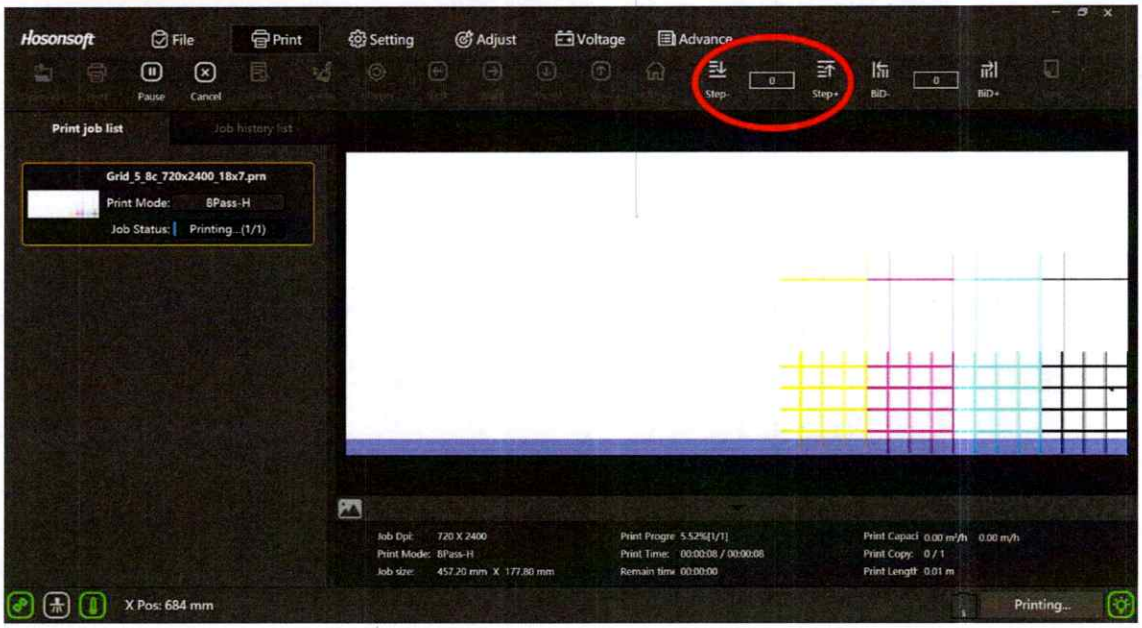


3. Examine the print for alignment between color and white zones.





4. If alignment is off, use Step+ or Step− buttons.
    - Wait for 3” of film travel to see changes.

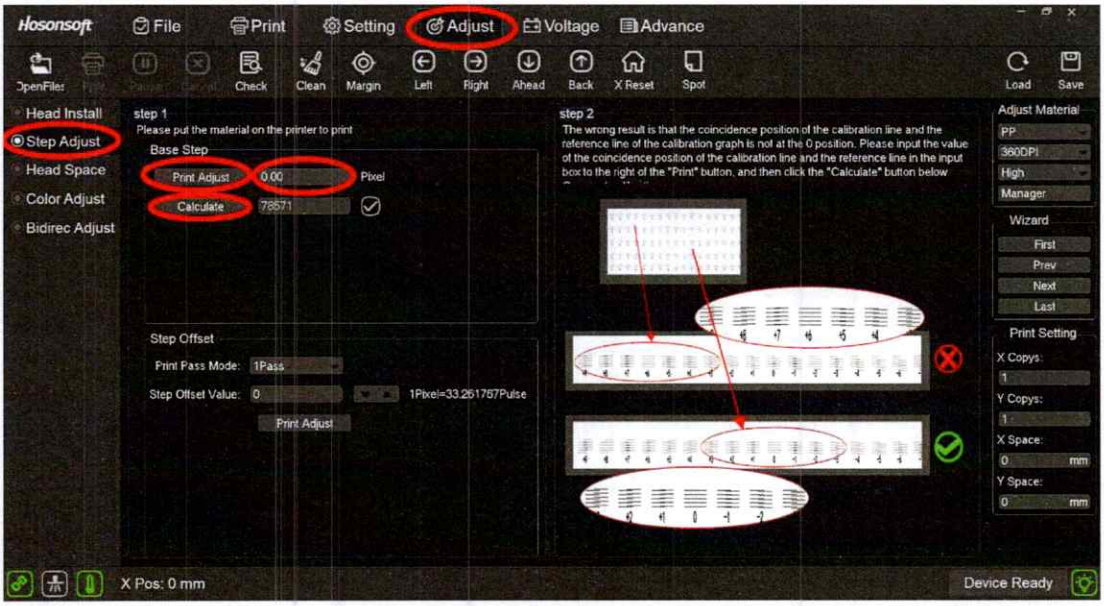


5. Make small adjustments (1–2 clicks).
6. If alignment worsens, return to the original value.
    - Then adjust in the opposite direction.
7. Repeat steps 5–6 until alignment is correct.

6.10.2.2 Printhead Step Adjustment

Use this method to calibrate the step value using the PrintEXP test patten.

1. Open PrintExp and go to the Adjust tab.
2. Select Step Adjust and click Print Adjust.



3. Examine the printed pattern.
    - Find the section where the lines align.
    - Note the number printed below that section.
4. If the number is 0, the step is correct.
5. If the number is not 0, enter it in the Pixel Value box.
    - Use positive or negative values.
    - Fractional values are allowed.
6. Select Calculate, then Save.
7. Print the test pattern again to verify alignment.
8. Repeat steps 3–7 if needed.

6.10.3 Printhead Step Alignment

This procedure calibrates the material step and vertical head alignment of a Quatro printer. Misalignment may appear as:

- Thick or doubled horizontal lines
- Blurred text or image edges
- Visual artifacts in the direction of film motion

The process includes:

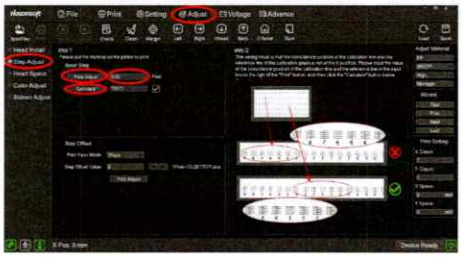
1. Step Adjustment
2. Vertical Head Space (Course Adjustment)
3. Vertical Head Space (Fine Adjustment)

Download the M&R Quatro Grid Test ZIP File from the SM&RT Academy.

6.10.3.1 Step Adjustment

This step calibrates the material feed through the printer.

1. Open the Adjust tab in PrintEXP.
2. Select Step Adjust from the left menu then select Print Adjust to print the step test pattern.

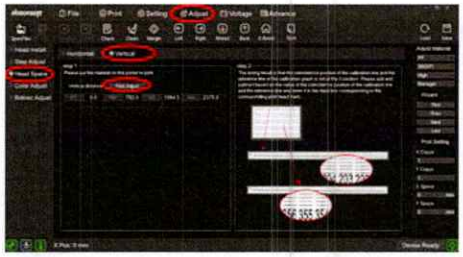


3. Inspect the printed pattern. Identify the section where the test lines align best.
   - If the value is 0, no adjustment is needed.
   - If not, enter the value (positive or negative) in the pixel text box. Fractional values are allowed.
4. Select Calculate, then Save (top right) to store the new value.
5. Reprint the test pattern to verify alignment.
   - Repeat steps if necessary until the section labeled 0 is aligned correctly.

6.10.3.2 Vertical Head Space – Course Adjustment

This step aligns heads vertically. Head 1 is the reference and remains unchanged.

6. Select Head Space from the Adjust tab in PrintEXP, go to the Vertical tab then select Print Adjust to print the vertical head space pattern.



7. Inspect the pattern labeled H1–H4.
    - Record values for H2, H3, and H4 where test lines align best.
    - If a value is 0, no adjustment is needed.
8. Enter values in PrintEXP using the text box or +/- buttons (increments of 0.2).
9. Reprint the pattern to verify alignment.
    - Repeat steps if necessary until H2–H4 show correct alignment.

6.10.3.3 Vertical Head Space – Fine Adjustment

This step fine-tunes the alignment between heads using a printed grid. Focus only on the **horizontal lines** in the test pattern.

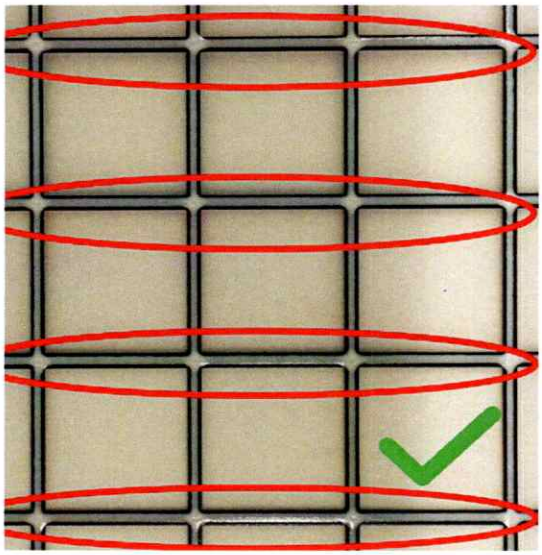
Print the Quatro Grid Test Pattern

10. Go to the Print tab > OpenFile in PrintEXP.
11. Load the file: M&R Quatro Grid Test 720x2400_18x7.prn and select Print.
    - Resolution: 720x2400
    - Image size: 18" x 7"

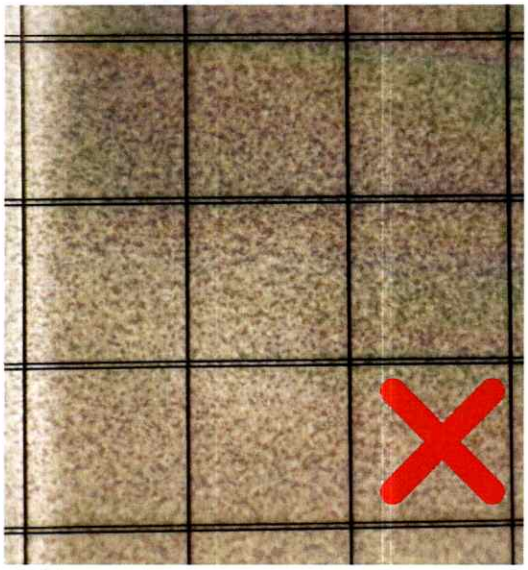
12. Examine the print. It contains five color zones: cyan, black, magenta, yellow, and white.

- Each zone has three sections:
  - Color to white with choke
  - Color to white without choke
  - Single pixel color to white

13. If alignment is correct, no other adjustments are necessary and the alignment process is complete.
    - If the lines are split or thick in the color or white zones, continue the alignment.



Example of good alignment from back of the film

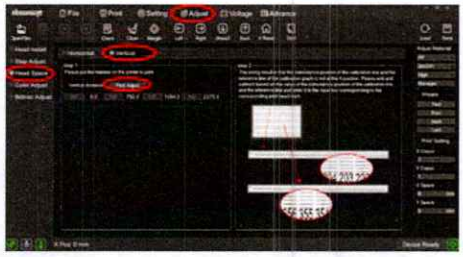


Example of poor alignment in the color zone

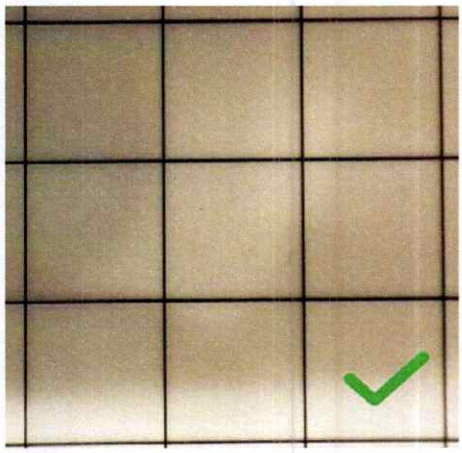
Adjust color printheads (H1 and H2)

14. Go to Settings tab > Advance Function and select Only Color from the Channel drop-down menu.

15. Reprint the grid
16. Go to the Adjust tab > Head Space > Vertical

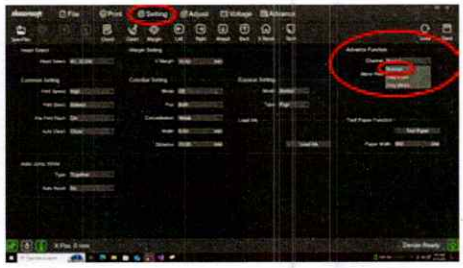


17. Increase H2 by 1 pixel then Save
18. Reprint the grid test.
    - If the result improves, continue increasing H2 by 1 pixel until aligned
    - If the result worsens, decrease H2 by 2 pixels until aligned.



Example of good color alignment

19. Return to Settings tab and select Normal from the Channel drop-down menu.



20. Reprint the test pattern to confirm color alignment and prepare for white printhead adjustment.

Adjust white printheads (H3 to H4)

21. Inspect white zone of the test print pattern.
22. If the knockout area is filled or the single horizontal line is split, adjust Head 4

Figure 6 - 50 Example of knockout with line

Figure 6 - 51 Example of split line

23. Go to the Adjust tab > Head Space > Vertical
24. Increase H4 by 1 pixel then Save and reprint the test pattern.
    - If the result improves, continue increasing H4 by 1 pixel until aligned
    - If the result worsens, decrease H4 by 2 pixels until aligned.
25. Reprint the test pattern to confirm alignment and prepare for white to color head alignment.

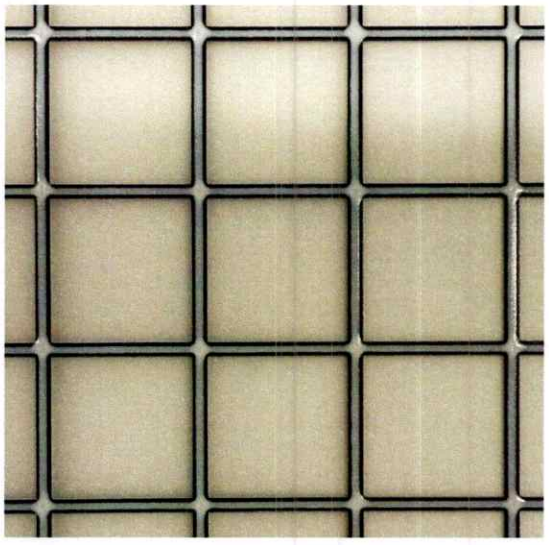
Align heads H1 and H2 to H3 and H4

26. Examine section 1 of each color zone.
27. The white layer should be centered within each color layer.
    - If the white layer is shifted forward or backward, adjust the vertical offset between color and white heads.

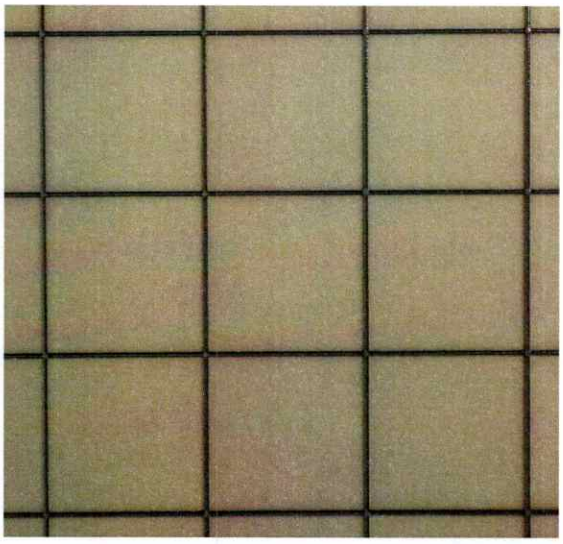
Example of poor layer alignment from film back

Example of poor layer alignment from film front

28. Go to the Adjust tab > Head Space > Vertical
29. Adjust H1, H2, H3, or H4 as needed to center the white layer.
30. Use the same pixel adjustment method as in previous stages.
31. Reprint the test pattern to verify final alignment.



Example of good layer alignment from film back



Example of good layer alignment from film front

7. Appendix

This section explains any additional information about the equipment not described elsewhere like parts and suggested resources.

7.1 Consumables and Parts 113

7.2 Storm Preparation 117

7.3 Contact M&R Service and Support 119

7.4 Service and Parts 120

7.1 Consumables and Parts

7.1.1 Consumables

Name	M&R Part Number
Quatro Cleaning Solution	QTRO-CLEAN-1
Quatro Film	QTRO-FILMA
Quatro Black Ink	QTRO-BLACK-1
Quatro Cyan Ink	QTRO-CYAN-1
Quatro Magenta Ink	QTRO-MAGENTA-1
Quatro Yellow Ink	QTRO-YELLOW-1
Quatro Green Ink - Quatro 68 only	QTRO-GREEN-1
Quatro Orange Ink - Quatro 68 only	QTRO-ORANGE-1
Quatro Red Ink - Quatro 68 only	QTRO-RED-1
Quatro Violet Ink - Quatro 68 only	QTRO-VIOLET-1
Quatro White Ink	QTRO-WHITE-1
Quatro Adhesive Powder	QTRO-POWDERA
Lint Free Cloths	5020586
Wypall Cloths	5050002
Foam Tipped Swabs	5029067

Table 7 - 1 Consumables List

7.1.2 Mechanical Parts and Tools

Name	M&R Part Number
Syringe	7MD0007

Name	M&R Part Number
Damper - also known as an "Ink Bag"	7MD0008
Main Ink Disc Filter	7990178
White Ink Capsule Filter	2MD0012
Peristaltic Pump Tubing	9CN03910003
Quartz Lamp	1MD0045
1.5 L Color Ink Tank	9DF2090001
1.5 L White Ink Tank - with agitator	9DF2090002
Cap for Capping Station	9DF2091001

Table 7 - 2 Mechanical Replacement Parts and Tools List

7.1.3 Electrical Replacement Parts

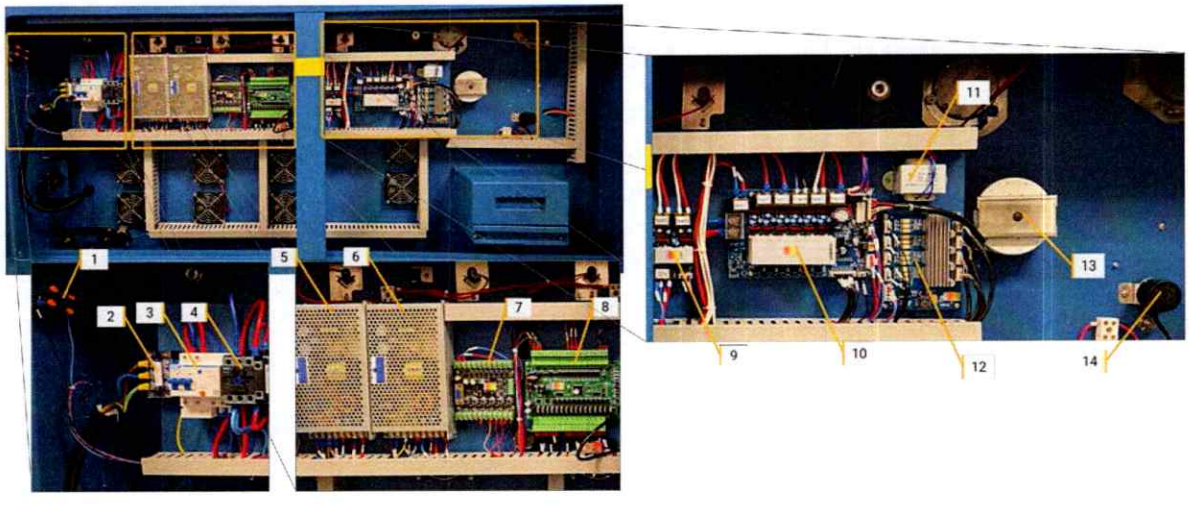


Figure 7 - 1 Electrical Cabinet Parts (1 of 2)

ID	Name	M&R Part Number
1	EMERGENCY STOP SWITCH	1MD0113
2	TERMINAL BLOCK	1MD0013

ID	Name	M&R Part Number
3	CIRCUIT BREAKER, 40 A	1MD0029
4	CONTACTOR, 32 A	1MD0020
5	POWER SUPPLY 24 VDC, 10 A	1MD0018
6	POWER SUPPLY 24 VDC, 10 A	1MD0018
7	SECOND PLC	1MD0032
8	MAIN PLC	1MD0019
9	QUARTZ BULBS BOARD, 2 CHANNELS	1MD0011
10	MAIN POWER BOARD, 6 CHANNELS	1MD0012
11	TRANSFORMER	1MD0016
12	STEPPER DRIVER BOARD, 4 CHANNELS	1MD0010
13	FLAPPER MOTOR	1MD0004
14	ANGLE SENSOR, POWDER WEIGHT	1MD0039
15	FLOW FAN	1MD0007
16	ANGLE SENSOR, FILM BAR	1MD0038
17	STEPPER MOTOR W/ GEAR 12 TEETH	1MD0001
18	QUARTZ TUBE, 500 W, 630 MM	1MD0031

Table 7 - 3 Electrical Parts List (1 of 2)

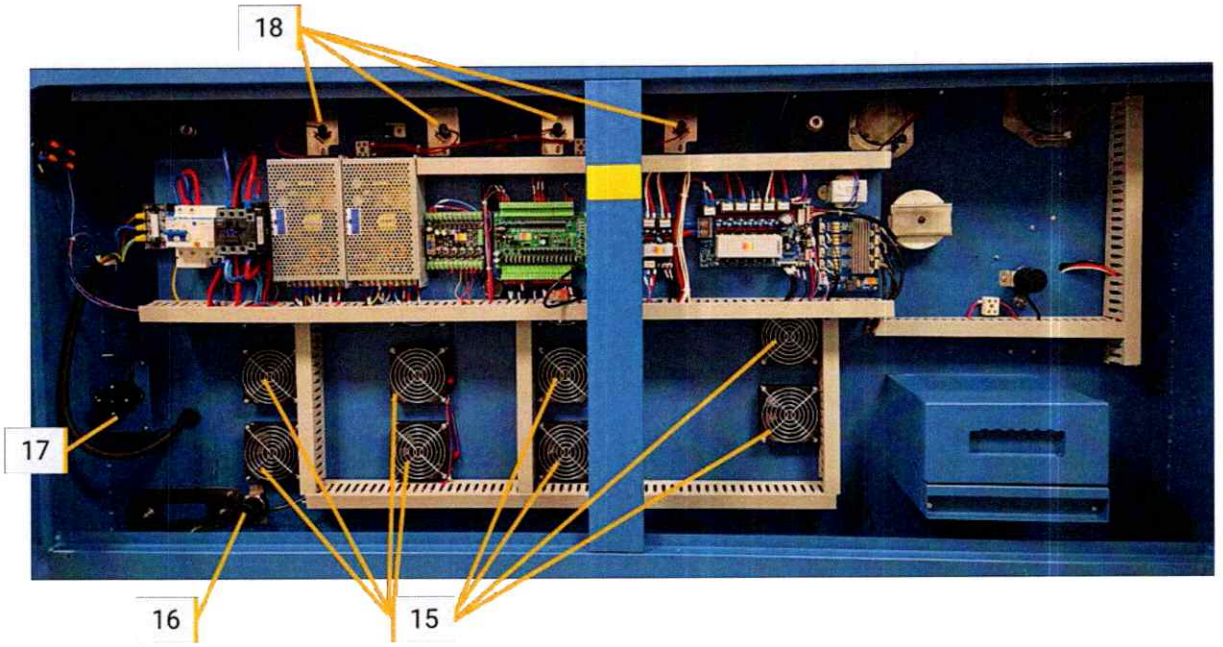


Figure 7 - 2 Electrical Cabinet Parts (2 of 2)

ID	Name	M&R Part Number
15	FLOW FAN	1MD0007
16	ANGLE SENSOR, FILM BAR	1MD0038
17	STEPPER MOTOR W/ GEAR 12 TEETH	1MD0001
18	QUARTZ TUBE, 500 W, 630 MM	1MD0031

Table 7 - 4 Electrical Parts List (2 of 2)

7.2 Storm Preparation

It is important to be proactive when preparing for storms and other disasters.

Do the following in the event of a storm:

- Document all equipment and relevant assets
- Photograph and catalog all equipment and all relevant assets
- Document and record the machine serial numbers, model numbers, and counters if applicable
- Gather all related documentation for future reference or claim purpose. This includes, but is not limited to:
    - Equipment Manuals
    - Schematics
    - Maintenance Records
    - Equipment Invoices
    - Receipts
    - Relevant Purchase Documentation

Protect your equipment by doing the following:

- Anchor and brace the equipment.
- Move all ancillary equipment (Flash Cures, Exposure Machines, etc.) to higher ground or different location to avoid water damage.
- Secure electronics or physically remove computers, especially those connected to M&R Equipment.
- Safely store or move spare parts and critical components from your spare parts inventory. These items may be critical to recommissioning your equipment.

Protect equipment from power surges:

Shut power off to all equipment. Turn off all related breakers at the power distribution panel. Contact a professional if you are uncomfortable doing so.

Covering the equipment:

Shut off the following before covering the equipment with a tarp.

- Power Supply
- Gas Supply

- Incoming Power
- Gas/Propane Connections

Checking for damage after the storm:

Do not turn your equipment on after a storm. Inspect the equipment for damage. Call the M&R Service Department to assist in the process of bringing your equipment back online. If working with an insurance agent, have them contact M&R to expedite the claims process. Do not clean your equipment prior to contacting your insurance company. It is important to preserve the condition of the equipment in its original state after the event. The evaluating professional needs to determine the level of exposure and water levels the equipment was exposed to. Do not attempt to repair the equipment without consulting with a service professional. Trying to start equipment improperly after it has been exposed to water, fire, debris, or other disasters may result in further damage to your equipment.

7.3 Contact M&R Service and Support

For service inquiries, replacement parts, consumables, or questions about the equipment, please call or visit our website at www.mrprint.com.

Telephone Support

From the United States & Canada:	
Monday-Friday (8:30 AM - 5:00 PM)	+1 800 736 6431
Central Standard Time (CST)	+1 630 858 6101
From all other Regions:	
Monday-Friday (14:30 - 23:00)	
Greenwich Mean time (GMT)	+1 847 967 4461
Outside Regular Hours (after hours service):	+1 630 462 4715

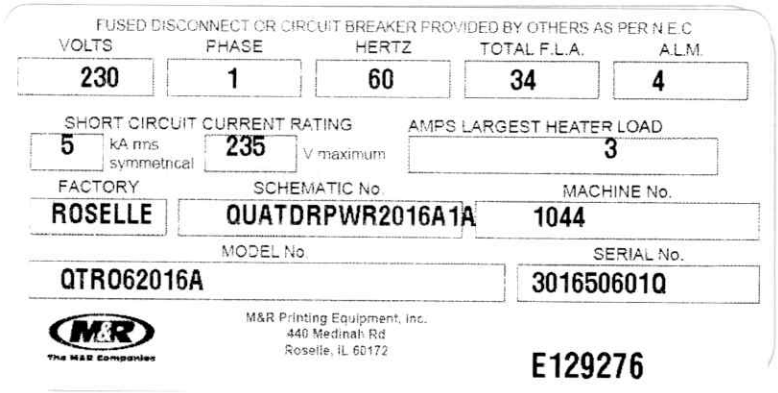
M&R Printing Equipment, INC.
440 Medinah Rd.
Roselle IL, 60172
USA

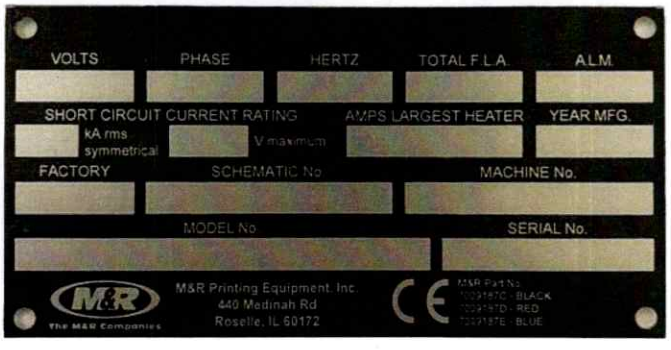
7.4 Service and Parts

Manufacturer's Rating Plate

Most products manufactured by M&R Printing Equipment have a metal manufacturer's rating plate. Below is a label imprinted with the information from your product's rating plate. Please be prepared to provide this information when calling. This helps us respond to your needs more quickly. If this is a replacement manual, please record the information from your product's rating plate in the table below.

This plate is located on the dryer.





Date Installed:	
Installed By:	
Optional Features and Special Information:	